LBP-2460

SERVICE MANUAL

REVISION 1

Canon

DEC. 1997 **RY8-1383-010**

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Prepared by

PERIPHERAL PRODUCTS QUALITY ADVANCEMENT DIV.
PERIPHERAL PRODUCTS TECHNICAL DOCUMENTATION DEPT.

CANON INC.

5-1, Hakusan 7-chome, Toride-City, Ibaraki-Pref. 302, Japan

SERVICE INFORMATION

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MODEL :

LBP-2460

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Y. Kajihara

LOCATION

SUBJECT **Revision of Service Manual**

Canon has published a revised version of LBP-2460 Service Manual (RY8-1383-000). Revision 1 (RY8-1383-010) includes supplementary materials as well as corrections, so please use it in place of the original.

RY8-1383-01Y

Printed in Japan

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PREFACE

This Service Manual contains basic information required for after-sales service of the LBP-2460 laser beam printer (hereinafter referred to as the "printer"). This information is vital to the service technician in maintaining the high print quality and performance of the printer.

The 2,000-sheet paper deck, option controller, envelope feeder, and duplexing unit, which are prepared for the printer as options, are also described in this manual.

In this manual, the optional 2,000-sheet paper deck is simply called the paper deck.

This manual consists of the following chapters:

Chapter 1: Product information
Features, specifications, operation, and installation

Chapter 2: Operation and Timing
A description of the operating principles and timing sequences of the electrical and mechanical systems.

Chapter 3: The Mechanical System
Explanation of mechanical operation, disassembly, reassembly, and adjustment procedures

Chapter 4: Troubleshooting
Maintenance and servicing, reference values and adjustments, troubleshooting procedures, lubricants, and solvents

Appendix: General timing chart, general circuit diagram, etc.

Information in this manual is subject to change as the product is improved or redesigned.
All relevant information in such cases will be supplied in Service Information Bulletins.
A thorough understanding of this printer, based on information in this Manual and Service Information Bulletins, is required for maintaining its performance and for locating and repairing the causes of malfunctions.

DTP system

This manual was produced on an Apple PowerMacintosh 9500/132 personal computer and output by an Apple LaserWriter 16/600 PS laser beam printer.

All graphics were produced with Aldus FreeHand (J), and all documents and page layouts were created with QuarkXPress (J).

The video images were captured with Canon Hi-8 8mm video camcorder and MASS microsystems Quickimage 24 video capture board, and modified with Adobe Photoshop™ (J).

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CHAPTER 1

PRODUCT INFORMATION

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I. FEATURES

1. High-speed printing
The controller of this printer has equipped Intel i960HD processor that enables a print speed of up to 24 pages per minute. (A4-size paper, or letter size paper).

2. Superior image quality
High resolution printing at 600 x 600 dpi (dots per inch) is further enhanced with AIR(Automatic Imaging Refinement) technology to smooth jagged edges, and the use of super fine toner.

3. Auto-duplexing
The optional duplex unit enables the printer to conduct automatic duplexing.

4. Large-volume continuous printing
By mounting the optional paper deck, the paper handling capacity is raised by 2,000 sheets (75g/m^2). As a result, the upper/lower cassettes, multi-purpose tray, and paper deck together can accommodate a total of 3,100 sheets (75g/m^2) for large-volume continuous printing.

5. 5-way paper feeding (including options)
The addition of the optional paper deck and optional envelope feeder to the standard-equipped multi-purpose tray and upper/lower cassettes results in 5-way paper feeding capability.

6. Memory saving technology
Memory reduction technology accomplishes 600 x 600 dpi printing with only 4 MB of memory. Complex data is compressed.

7. Energy saving and ecology
The printer conserves electricity by automatically reducing power consumption when it remains idle for a specified length of time. The printer then returns to full power after a button of control pane is pressed or print job is started.
To save toner the economy mode can be selected to print rough drafts with less toner.

8. Automatic interface switching
In addition to the standard-equipped bi-directional parallel interface (Centronics specifications), the printer has been equipped with expansion port which enables network board to be installed. And, data sent from the host computer is automatically switched among both interfaces no matter which interface port it enters.

9. Automatic emulation switching
This printer supports Hewlett-Packard's enhanced PCL5 printer language. When the optional Canon Translator module A4(an add-in ROM) is installed, the printer also supports Adobe PostScript Level 2. The printer can sample the print data as it is received and then automatically switch between the PCL and PostScript personalities.

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II. SPECIFICATIONS

A. Printer

1. Printer engine

Type	Desktop page printer (console type when paper deck is installed)
Printing method	Electrophotography
Printing speed **(Note 1)**	About 24 pages/min. (A4) About 13 pages/min. (A3)
First print time **(Note 2)**	18.9 sec. or less (A4)
Wait time **(Note 3)**	80 sec. or less (100V, 220V) 60 sec. or less (120V, 240V)
Scanning pitch	
Horizontal	600 DPI
Vertical	600 DPI
Image formation system	
Laser	Semiconductor laser
Scanning system	Six-faced prism mirror scanning
Photosensitive	
Drum	OPC
Charging	Roller charging
Exposure	Laser scanning system
Toner	Magnetic single-component dry toner
Development	Toner projection development system
Toner supply	By EP-W cartridge replacement (about 15,000 A4-sized prints; with image density set in the middle and 4% dot density)
Transfer	Roller transfer
Separation	Curvature/discharge bias
Cleaning	Blade
Fixing	Heated rollers (500W x 2)
Paper pick-up	Multi-purpose tray, upper cassette, lower cassette, envelope feeder (option), paper deck (option)
Print paper	Plain paper, coloured paper, labels, OHT, envelopes
Paper sizes	
Multi-purpose tray	98.4mm (W) x 190.5mm (L) ~ 297mm (W) x 432mm (L) plain paper ($64g/m^2$~$128g/m^2$ recommended paper), above-mentioned paper
Upper cassette	B4, A4, Legal, Letter-sized plain paper ($64g/m^2$ ~ $105g/m^2$ recommended paper), coloured paper
Lower cassette	A3, B4, A4, Ledger, Legal, Letter-sized plain paper ($64g/m^2$ ~ $105g/m^2$ recommended paper), coloured paper
Multi-purpose tray capacity	10mm stack (about 100 sheets of $75g/m^2$ paper)
Cassette capacity	50mm stack (about 500 sheets of $75g/m^2$ paper)
Cassette types	
Upper cassette	Universal (accommodates B4, A4, Legal, Letter sizes)
Lower cassette	Universal (accommodates A3, B4, A4, Ledger, Legal, Letter sizes)
Print delivery	Face-down/face-up
Print tray capacity	
Face-down	About 500 sheets ($75g/m^2$ paper)
Face-up	About 100 sheets ($75g/m^2$ paper)
Duplexing	
Auto-duplexing	When duplex unit (option) is installed, and plain paper only ($64g/m^2$ ~ $105g/m^2$ recommended paper)

Manual duplexing **(Note 4)**	Plain paper (64g/m² ~ 128g/m² recommended paper) on multi-purpose tray	
Environment		
Temperature	10 - 32.5°C	
Humidity	20 - 80% RH	
Air pressure	746 - 1013hPa (560 - 760mmHg)	
Power consumption	Max. about 1.3kW or less (20°C room temperature, rated voltage)	
Noise level (Officially announced level based on ISO 9296)	Sound power level (1B=10dB)	6.5B or less (printing) 5.2B or less (standby)
	Sound pressure level (Bystander position)	52dB or less (printing) 38dB or less (standby)
Dimensions	566 (W) x 563.5 (D) x 540 (H) mm	
Weight	About 48kg (without EP-W cartridge), about 3kg (cartridge)	
Line voltage requirements	100 - 120V (±10%),50 - 60Hz(±2Hz) 220 - 240V (-10% +6%),50 - 60Hz(±2Hz)	
Options	Duplex unit, paper deck, envelope feeder	

Notes: **1.** At a room temperature of 20°C with rated voltage input.
2. When the printer is in READY state at a room temperature of 20°C, the time from reception of the PRINT signal from the video controller until an A4-sized print is delivered.
3. At a room temperature of 20°C with rated voltage input, the time from turning ON the printer until the end of the WAIT period.
4. When manual duplexing, correct the curl of the print delivered in the face-down tray before setting it in the multi-purpose tray.

2. Video Controller

CPU	RISC processor (Intel A80960HD-66 66MHz)
Memory (RAM)	4 MB (Expandable to 96 megabytes in total with optional RAM SIMM)
ROM DIMM Slots	2
RAM SIMM Slots	3
Host interface	Standard: IEEE1284 compliant parallel Option: Expansion interface (LocalTalk, Ethernet, Token Ring)
Translators	Standard: Enhanced PCL5 Option: Adobe PostScript Level 2
Internal fonts	45 Scalable fonts (35 Intellifont typefaces, 10 TrueType typefaces) 6 Bitmap fonts
Scaler	USFT (Universal Font Scaling Techology by Agfa, Miles Inc.)

<Internal fonts>
• Bit Map Fonts

Table 1-2-1

Type face	Pitch (CPI)	Size (Points)	Style	Stroke weight	Remarks
Lineprinter	16.66	8.5	Upright	Medium	Separate internal fonts are provided for portrait landscape orientations.

• Scalable Fonts

Table 1-2-2

Type face	Pitch (CPI)	Size (Points)	Type face
• Intellifont (35 type faces) Courier, Courier Bold, Courier Italic, Courier Bold Italic, CG Times, CG Times Bold, CG Times Italic, CG Times Bold Italic, CG Omega, CG Omega Bold, CG Omega Italic, CG Omega Bold Italic, Coronet, Clarendon Condensed, Univers Medium, Univers Bold, Univers Medium Italic, Univers Bold Italic, Univers Medium Condensed, Univers Bold Condensed, Univers Medium Condensed Italic, Univers Bold Condensed Italic, Antique Olive, Antique Olive Bold, Antique Olive Italic, Garamond Antiqua, Garamond Halbfett, Garamond Kurisiv, Garamond Kursiv Halbfett, Marigold, Albertus Medium, Albertus Extra Bold, Letter Gothic, Letter Gothic Bold, Letter Gothic Italic • TrueType (10 type faces) Arial, Arial Bold, Arial Italic, Arial Bold Italic, Times New Roman, Times New Roman Bold, Times New Roman Italic, Times New Roman Bold Italic, Symbol, Wingdings	Scalable		It is possible to print both portrait and landscape orientations.

Specifications are subject to change with product modification.

B. Options

1. Envelope feeder (Envelope Feeder EF-9)

Feeding speed	About 16 envelopes/min.
Envelope types	COM-10, DL, Monarch, C5, B5 ISO-typed envelope (90g/m^2 recommended paper)
Capacity	73mm stack or 100 envelopes
Dimensions	368 (W) x 320 (D) x 140 (H) mm
Weight	About 3kg
Power supply	DC24V (supplied from the printer)

2. Duplex unit (Duplex Unit TP-9)

Feeding speed	About 19 sheets/min. (A4)
Paper types	A3, A4, B4, B5 JIS, Ledger, Legal, Letter, Executive-sized plain paper (64g/m^2 ~ 105g/m^2 recommended paper)
Dimensions	379 (W) x 423 (D) x 82 (H) mm
Weight	About 3kg
Power supply	DC24V (supplied from the printer)

3. Paper deck (2,000 Sheet Paper Deck PD-9)

Feeding speed	About 24 sheets/min. (A4), about 13 sheets/min. (A3)
Paper types	A3, A4, B4, Ledger, Legal-sized plain paper (64g/m^2 ~ 105g/m^2 recommended paper)
Capacity	Stacking height of 200mm (accommodates about 2,000 sheets of 75g/m^2 paper)
Power consumption	Max. about 75W or less (20°C room temperature, rated voltage)
Dimensions	629 (W) x 520 (D) x 651 (H) mm
Weight	About 30kg
Line voltage requirements	100 - 120V (±10%),50 - 60Hz(±2Hz) 220 - 240V (-10% +6%),50 - 60Hz(±2Hz)

4. Option controller

CPU	NEC UPD784020GC-3B9
Memory (RAM)	512 bytes
Frequency	25MHz
EPROM	TEXAS INSTRUMENTS TMS27C512-12JL
Memory (ROM)	64Kbytes
SRAM	SAMSUNG KM62256CLG-7L
Memory	32Kbytes

Specifications are subject to change with product modification.

III. ⚠ SAFETY INFORMATION

A. Laser Safety

An invisible laser beam is irradiated within the laser/scanner unit.

Since the laser beam can injure the eye if it strikes it, be sure not to disassemble the laser/scanner unit. It cannot be adjusted in the field, anyway.

The label shown below is attached to the laser/scanner unit cover.

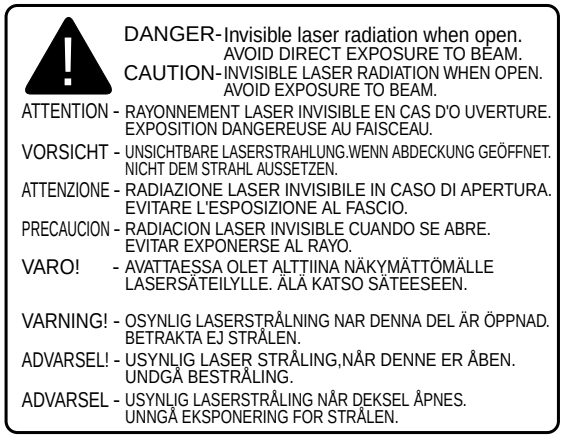

DANGER- Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION- INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ATTENTION - RAYONNEMENT LASER INVISIBLE EN CAS D'O UVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
VORSICHT - UNSICHTBARE LASERSTRAHLUNG.WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ATTENZIONE - RADIAZIONE LASER INVISIBILE IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.
PRECAUCION - RADIACION LASER INVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.
VARO! - AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING! - OSYNLIG LASERSTRÅLNING NAR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
ADVARSEL! - USYNLIG LASER STRÅLING,NÅR DENNE ER ÅBEN. UNDGÅ BESTRÅLING.
ADVARSEL - USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.

Figure 1-3-1

B. Toner Safety

Composed of minute, plastic, colored components, toner is a non-poisonous substance.

If toner adheres to your skin or clothes, remove as much of it as possible with a dry tissue, then wash with cold water. If you use hot water, the toner will gel and become difficult to remove.

As toner easily breaks down vinyl materials, avoid letting toner come into contact with vinyl.

C. Ozone Safety

An infinitesimal amount of ozone gas (O_3) is generated during corona discharge from the charging roller used in this printer. The ozone gas is emitted only when the printer is operating.

This printer meets the ozone emission reference value set by Underwriters Laboratory (UL) at the time it is shipped from the factory.

D. Power Supply Unit Safety

Care is needed as even though the printer switch may be OFF, there is a possibility that a current may still flow on the primary side. Be sure to remove the power plug before disassembly and assembly of this printer.

IV. PARTS OF THE PRINTER

A. External Views

1. Printer

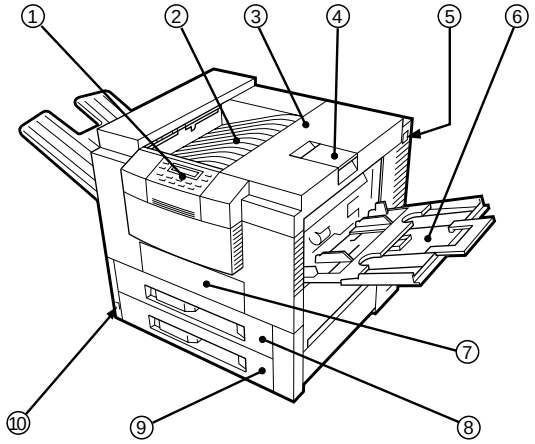


Figure 1-4-1

1: Operation panel unit
2: Face-down tray
3: Upper cover
4: Delivery stopper
5: Test print switch
6: Multi-purpose tray
7: Duplex unit door
8: Upper cassette
9: Lower cassette
10: Power switch
11: Delivery cover
12: Face-up tray
13: Parallel interface connector
14: Power receptacle
15: Connector for option interface (option)
16: Expansion board slots
17: Cleaning brush
18: EP-W cartridge
19: Pick-up unit door

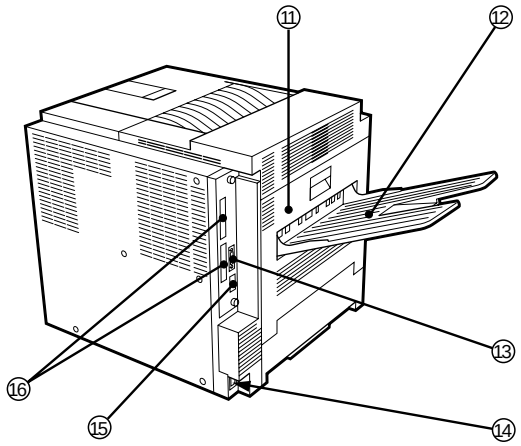


Figure 1-4-2

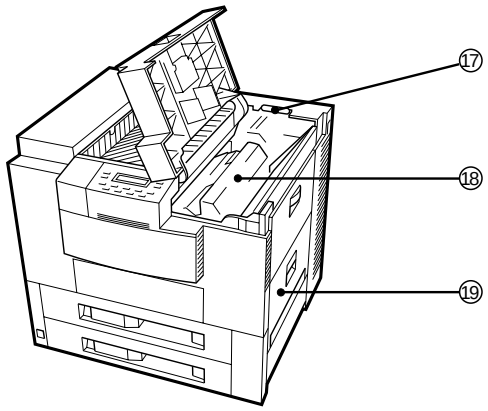
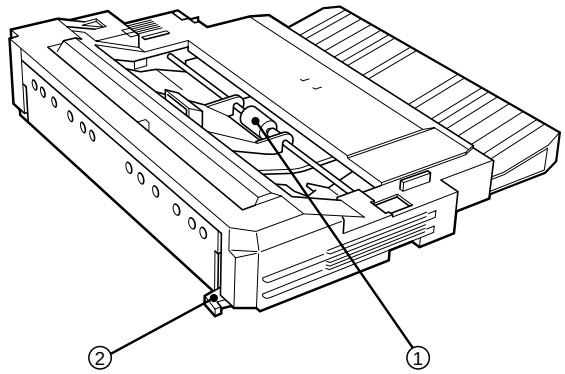


Figure 1-4-3

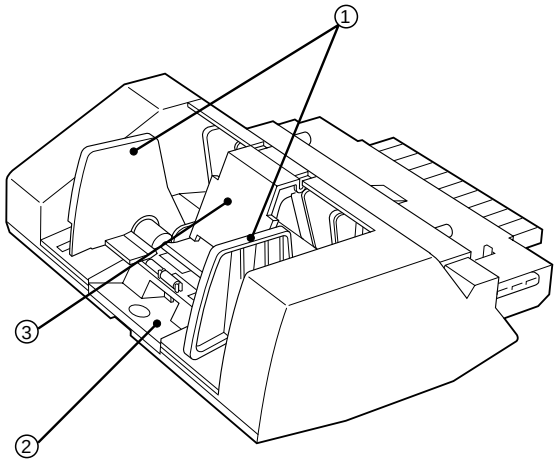
2. Duplex unit



1: Duplexing feed roller
2: Duplex unit removal lever

Figure 1-4-4

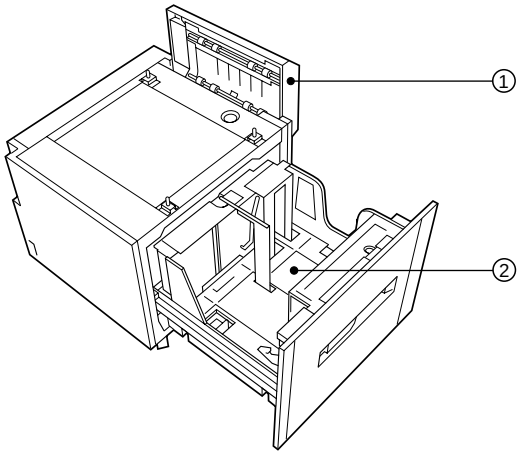
3. Envelope feeder



1: Envelope guide
2: Extension tray
3: Weight

Figure 1-4-5

4. Paper deck



1: Feed cover
2: Tray
3: Interface connectors
4: Power receptacle

Figure 1-4-6

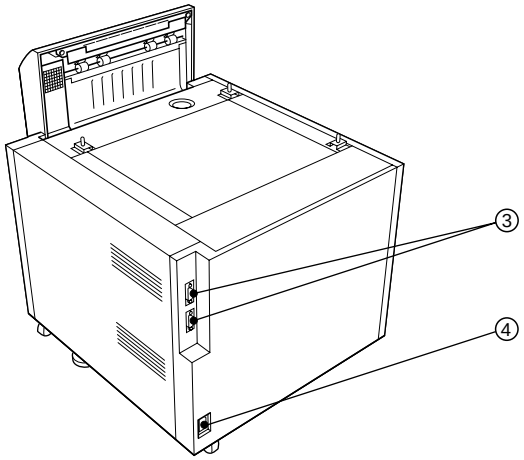


Figure 1-4-7

B. Cross Sectional Views

1. Printer, Duplex unit

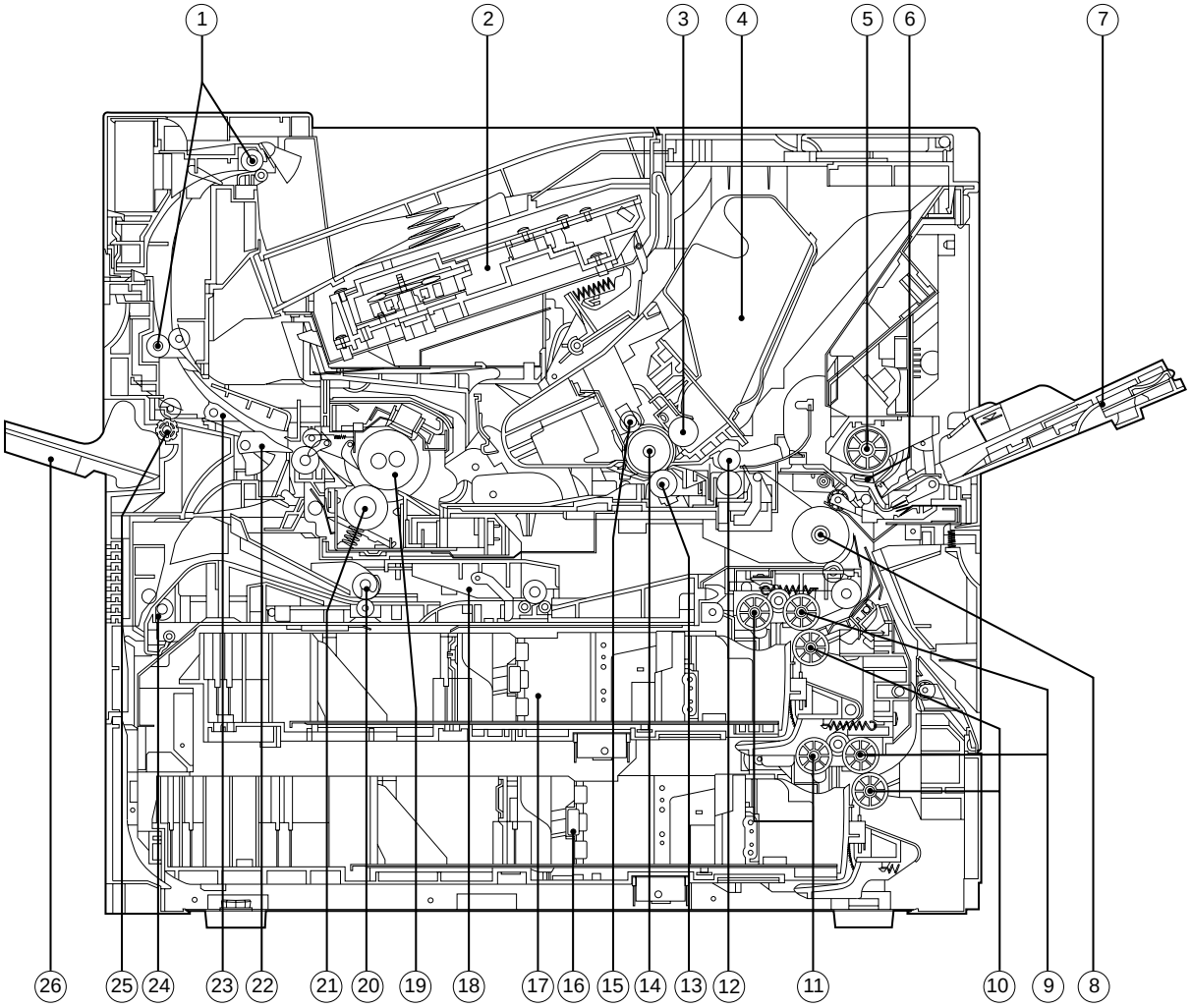


Figure 1-4-8

1: Delivery roller
2: Laser/scanner unit
3: Developing cylinder
4: EP-W cartridge
5: Manual feeding pick-up roller
6: Separation pad
7: Multi-purpose tray
8: Feed roller 1
9: Feed roller 2
10: Separation roller
11: Pick-up roller
12: Registration roller
13: Transfer charging roller
14: Photosensitive drum
15: Primary charging roller
16: Lower cassette
17: Upper cassette
18: Duplexing unit (option)
19: Fixing upper roller
20: Duplex feed roller (Duplexing unit)
21: Fixing lower roller
22: Duplex deflector
23: Face-up deflector
24: Switchback roller (Duplexing unit)
25: Face-up delivery roller
26: Face-up tray

2. Envelope feeder

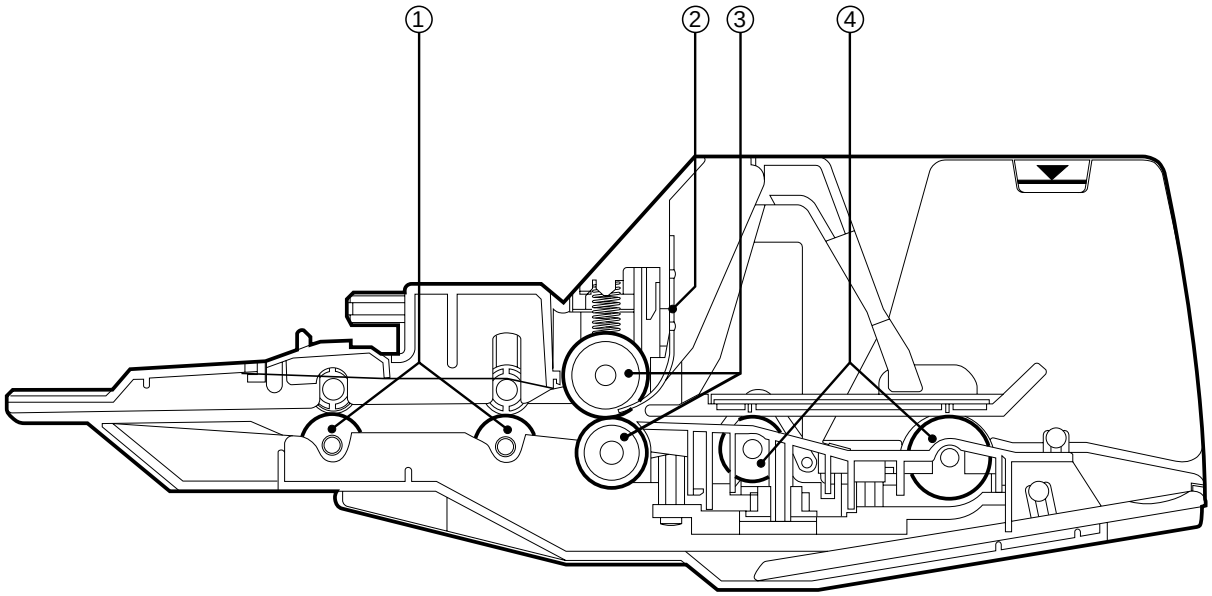


Figure 1-4-9

1: Feed rollers
2: Separation guide
3: Separation rollers
4: Pick-up rollers

3. Paper deck

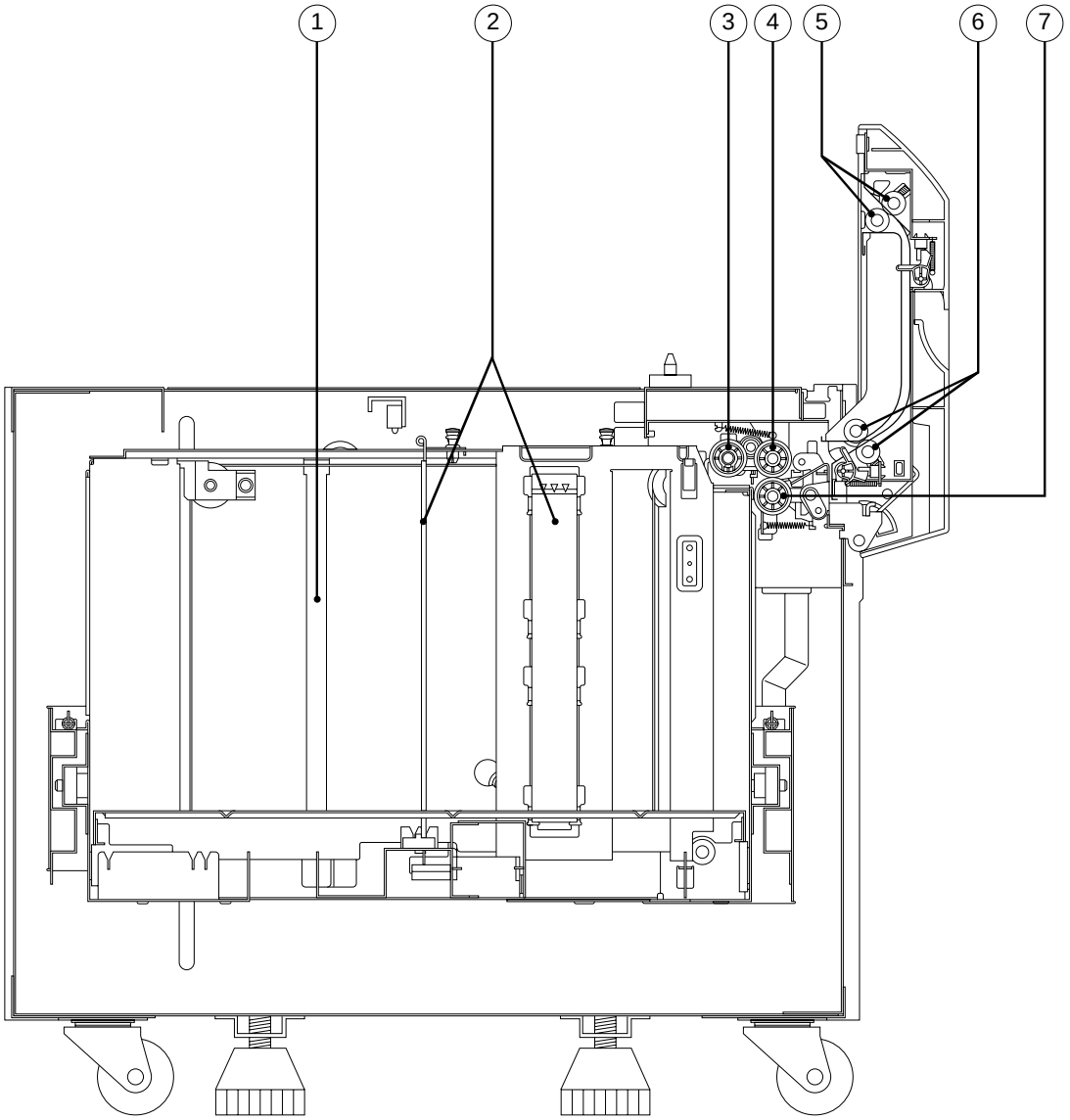


Figure 1-4-10

1: Deck
2: Paper guides
3: Pick-up roller
4: Feed roller 1
5: Feed roller 2
6: Registration rollers
7: Separation roller

V. INSTALLATION

A. Notes

This printer is packaged and shipped from the factory after careful adjustments and rigorous inspections.
When installing the printer, it is important to demonstrate its performance in the same way as when it passes the factory inspection.
The service engineer must sufficiently understand the performance of the printer, install it correctly in a location with an appropriate environment, and conduct sufficient checks of the unit.

B. Location Selection

Before taking the printer to the customer's premises, you should confirm the following conditions at the installation location.

1. Power supply

Use the following power supplies:
- Line voltage (AC): 100 - 120V ±10%
  220 - 240V -10% +6%
- Power frequency: ±2Hz rated frequency

2. Operating environment

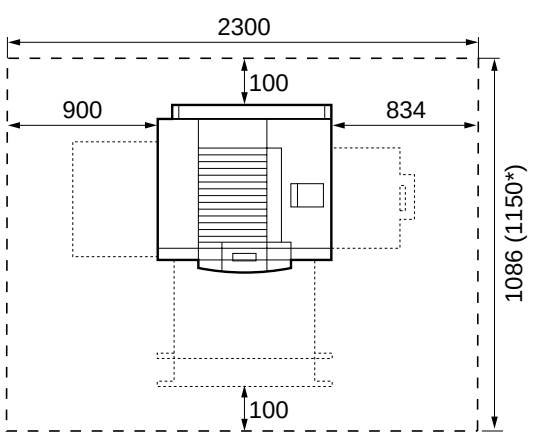
Install in a location that meets the following conditions:
- Level, flat surface
- Temperature, humidity within the following ranges:
  Surrounding temperature: 10 to 32.5°C
  Surrounding humidity: 20 to 80%RH (relative humidity), without condensation
- Cool, well-ventilated space

Do not install in the following locations:
- Exposed to direct sunlight
- If you cannot avoid such a location, hang heavy curtains, etc., to shut out the direct sunlight.
- Near magnets and devices that emit a magnetic field
- Areas with vibration
- Dusty places
- Near fire or water

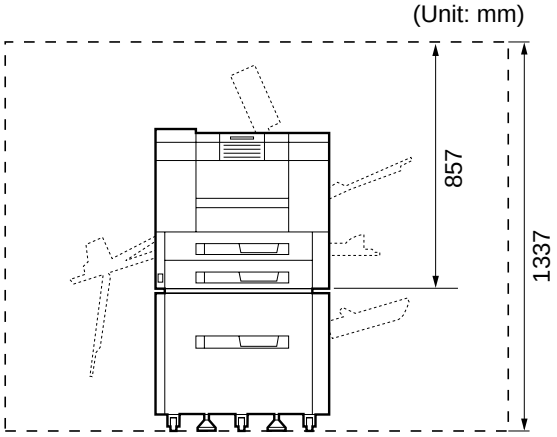
3. Installation space

Install the printer a suitable distance from the wall, leaving enough room to operate it (see Figure 1-5-1).

When installing the printer on a desk, etc., be sure that it is large enough to accommodate the printer's feet (rubber pads) and sturdy enough to hold its weight.



*When paper deck is installed to printer.



Required space surrounding the printer with the paper deck installed (option)

Figure 1-5-1

C. Unpacking and Installation

Condensation will form on metal surfaces when brought into a warm room from the cold. Therefore, when moving the printer to a warm environment, leave it packed in its box for at least an hour to acclimatize to room temperature.

1. Printer

1) Open the printer packaging.
2) Take out the accessories. Confirm that the power cord, cartridge, and face-up tray are included.
3) The printer weighs approx. 48kg, therefore 4 people may be needed to lift the printer and to move to the installation area.
4) Take the plastic bag off the printer and peel the tape off each part. Check that none of the covers were scratched or deformed during shipment.
5) Open the delivery cover, and remove the pressure release spacer from the fixing unit.
6) Open the upper cover, and remove the tape and the packing materials from inside the printer.
7) Pull the two cassettes out of the printer and remove the packaging from the cassette.

2. Cartridge

1) Open the bag holding the cartridge and take out the cartridge.
2) Remove the tape and the black sheet from the printer.
3) Hold the cartridge on each side as shown in figure 1-5-7 and slowly rock it 5 to 6 times to evenly distribute the toner.
4) Place the cartridge on a flat surface. While holding down on the top of the cartridge with one hand, grasp the tab with the other and gently pull out the cylinder tape.
5) Open the upper cover of the printer, and load the cartridge with both hands. Slowly insert it until it firmly contacts with the back of the slot.

3. Envelope feeder

1) Open the envelope feeder packaging.
2) Take off the plastic bag and peel the tape off.
   Check that none of the covers have been scratched or deformed during shipment.
3) Remove the packing from the envelope feeder.
4) Open the multi-purpose tray and remove the envelope feeder slot cover.
5) Holding the envelope feeder in both hands, install it into the printer.

4. Duplex unit

1) Open the duplex unit packaging.
2) Take off the plastic bag and peel the tape off.
3) Remove the packing from the duplex unit.
4) Open the delivery cover on the printer.
5) Holding the duplex unit in both hands, install it into the printer.

5. Option controller

Note: Discharge electrical static from your body by touching the metal frame of the printer prior to installing the PCB in order to avoid causing damage by the difference in static charge at that time.

1) Open the option controller packaging.
2) Remove the plastic bag from the optional controller.
3) Loosen the 2 screws on the back of the printer and pull out the PCB.
4) Remove the screw holding the option interface cover of the PCB.

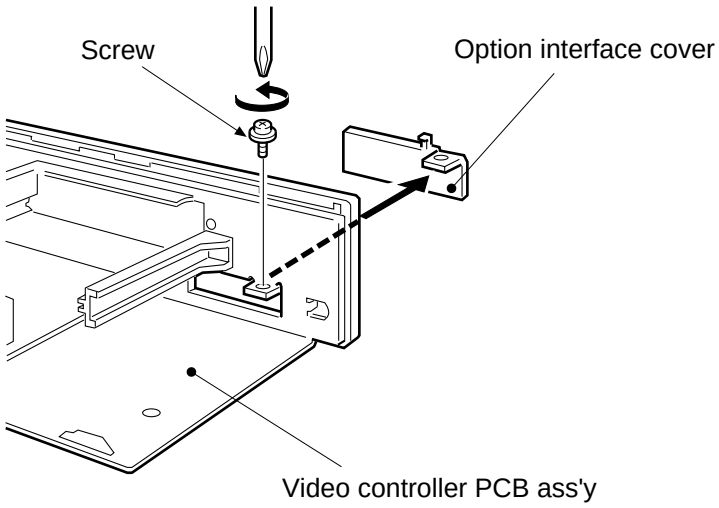


Figure 1-5-2

5) Insert the option controller as shown below.
6) Set the option controller with the 3 supplied screws.

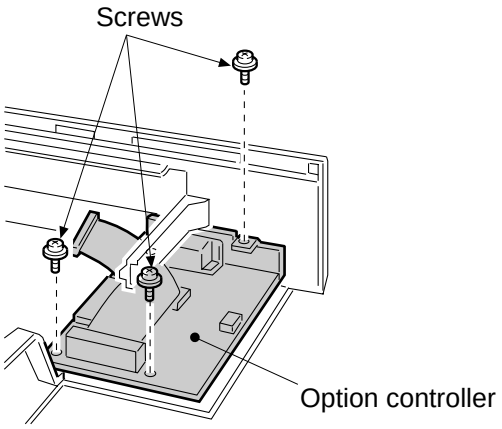


Figure 1-5-3

7) Insert a connector.

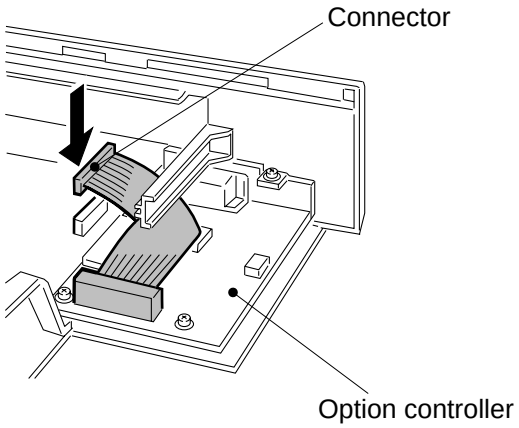


Figure 1-5-4

8) Insert the PCB to the printer and tighten the 2 screws.

6. Paper deck

a. Opening the packaging

1) Open the paper deck packaging and remove the box.
2) Take out the accessories. Confirm that the power cord, manuals and interface cable are included.
3) Remove the top pads (left/right) and remove the paper deck from the box.
4) Take off the plastic bag surrounding the paper deck and peel off the tape holding the various parts. Confirm that none of the covers were scratched or deformed during shipment.
5) Open the feed cover and remove the 2 spacers.
6) Open the deck and peel the tape off.
7) Peel off the tape holding the latch of the paper guide.

b. Installation

1) Carry the paper deck to the installation location and lock the casters.
2) Rotate the 4 adjusters to install it on the floor.
3) Open the feed cover.
4) Align the paper deck and the printer in the same direction, and have 4 people lift the printer. Lower the printer onto the paper deck while aligning the 3 locating pins on the paper deck.
5) Close the feed cover.
6) Connect the paper deck and the printer with an interface cable.

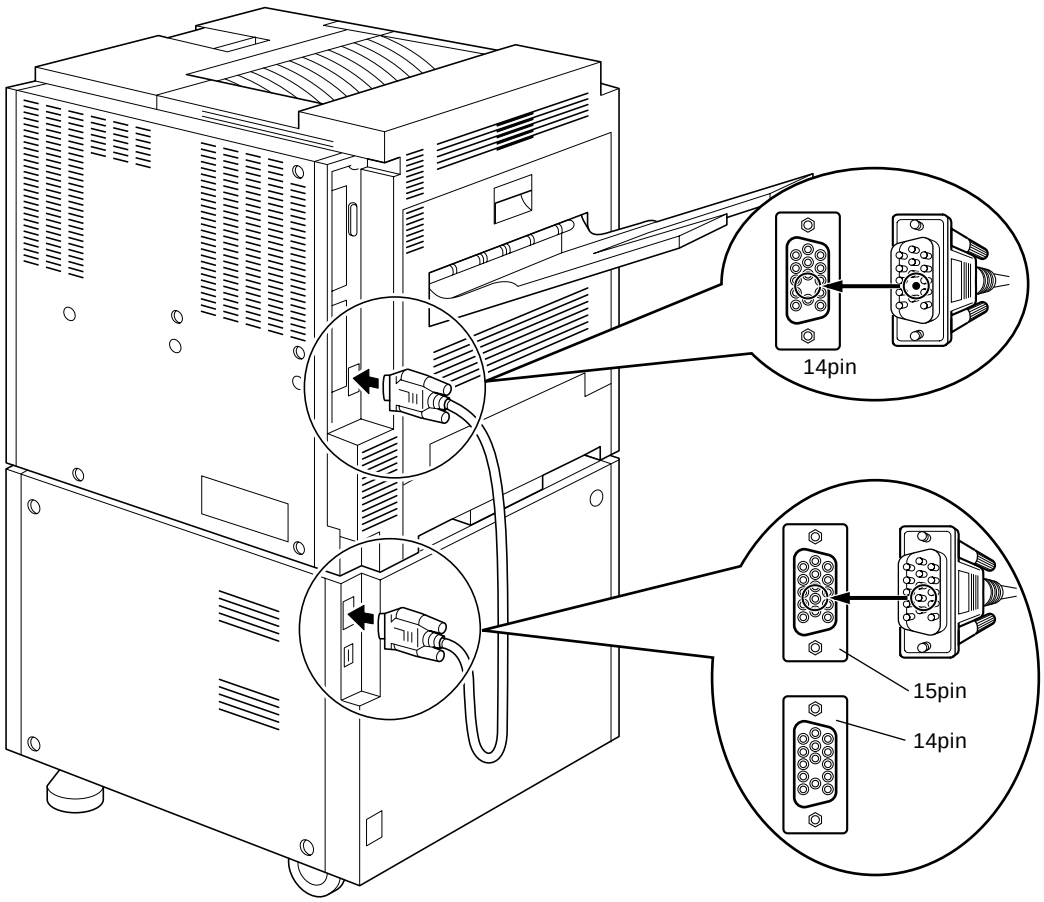


Figure 1-5-5

Note: Be aware that connectors on the both ends of the interface connector differ in shape, 15-pin and 14-pin, as shown below.

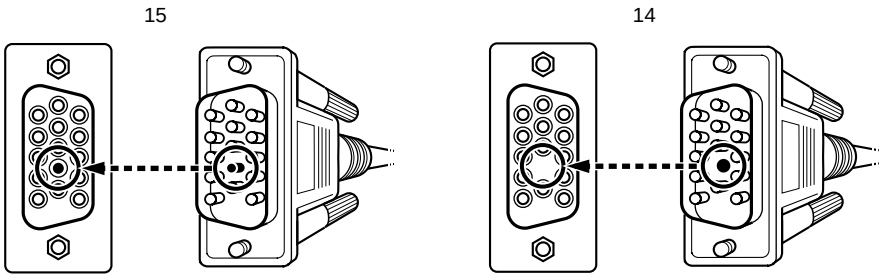


Figure 1-5-6

7) Plug the power cord into the paper deck and the outlet.

7. Operation confirmation

1) Load paper in the lower cassette.
2) Insert the power plug into the outlet and the printer, then turn the power switch ON.
   After the printer enters STANDBY mode, press the test print switch to make a test print. Check that the density of the output image is correct
3) Clean around the printer and ensure that it is ready for use at anytime.

8. Operation precautions

1) Turn on the power of external equipment then the printer. Turn the power off in the reverse sequence. If the power of external equipment is turned on/off while the printer is on, noise may be transmitted through the connection cable between the external equipment and the printer, and error may occur on the printer.
2) Turn off the power of both the printer and the external equipment before plugging/unplugging the connector between the two. Doing so while the power is on could cause malfunctions.
3) The power of the printer shall be turned off before attaching/removing the expansion RAM SIMM and expansion ROM DIMM (options).
4) Use a shielded cable for connecting the printer and the external equipment. Parallel interface cable shall be a maximum of 3 meters.

D. Storing, Handling the EP-W Cartridge

Whether the cartridge is still sealed in its box or installed in the printer, the effect of the natural environment will change it over time regardless of the number of prints. As the progression of this natural change depends on the storage or installation environment, take sufficient care in storing and handling the cartridges.

1. Before unsealing the box

When the cartridge is stored in a warehouse, workshop, etc., be sure to keep it within the ranges shown in Table 1-5-1. Note the following points:

1) Avoid locations in direct sunlight.
2) Do not leave in areas exposed to strong vibration.
3) Do not bump or drop.

Table 1-5-1 Storage temperature and humidity conditions

Temperature	Normal (total storage time x 9/10)		0 to 35˚C
	Severe (total storage time x 1/10)	High	35 to 40˚C
		Low	–20 to 0˚C
Temperature change (within 3 minutes or so)			40˚C →15˚C –20˚C →25˚C
Relative humidity	Normal (total storage time x 9/10)		35 to 85% RH
	Severe (total storage time x 1/10)	High	85 to 95% RH
		Low	10 to 35% RH
Air pressure			345 to 1013 hPa (460 to 760 mmHg)
Total storage time			2 years 6 months

Note: Total storage time is the valid time span following the manufacture date displayed on the cartridge box.

2. After unsealing the box

As an organic photoconductor (OPC) is used in the photosensitive drum, it will deteriorate if exposed to strong light. As there is toner in the cartridge, be sure to explain to the customer the need to be careful in handling and storing unsealed cartridges.

a. Storage environment

1) Be sure to store in the aluminum bag.
2) Avoid locations exposed to direct sunlight, near windows, etc. Do not leave them in cars for any extended period of time as heat can damage the cartridges.
3) Avoid high, low, and changeable temperature/humidity locations.
4) Avoid sites with corrosive gases (pesticides) or salt in the air.
5) Store the cartridge within a range of 0 to 35°C.

6) Do not leave cartridges near CRT displays, disk drives or floppy disks.
7) Store the cartridges out of reach of children.

b. Effective life

Cartridges are valid for 2.5 years following the date of manufacture, which is displayed in an abbreviated form on the cartridge. The cartridge life span (month, year) is also displayed on both the printer box and cartridge box as 2.5 years from the date of manufacture. Cartridges should be used within their life spans, as image quality will deteriorate after the valid period.

3. Handling

1) When loading a new cartridge into the printer, or when the toner in an already loaded cartridge hardens and blank spots appear on output images, hold the cartridge at each end as shown in the below figure and slowly rock it about 45Þ in each direction 5 to 6 times. This will evenly distribute the toner, and then reload it into the printer. Do not shake the cartridge in any other way, as toner may leak from the developing cylinder or the cleaning unit.

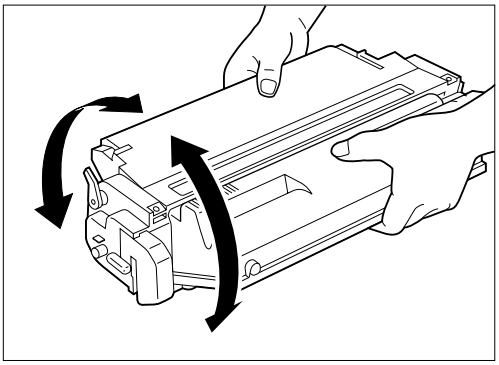


Figure 1-5-7

To ensure that toner does not leak and dirty the images, be sure to print 3 to 5 pages of test patterns after loading the cartridge in the printer.

2) When transporting the printer, remove the cartridges.
Either insert the cartridge in the aluminum bag or wrap it in a thick cloth to ensure light does not penetrate it.
3) Do not leave the cartridge near CRT displays, disk drives, or floppy disks.
The magnetism generated by the cartridge may destroy their data.
4) As the photosensitive drum is sensitive to strong light, do not expose the cartridge to direct sunlight or strong light (1500 lux or more). If it is exposed to strong light, blank spots or black lines may appear on images.
Should this happen, temporarily turn OFF the printer. The distorted images such as blank spots or black lines are likely to disappear. However, if the drum was exposed to strong light for a long period of time, it is possible the black lines, etc., will remain.
5) Never open the photosensitive drum protective shutter by hand. Do not touch the drum surface with your bare hand. If you accidentally dirty the drum surface, wipe it with a flannel cloth and toner. Do not dry-wipe it or clean it with solvents.
6) Do not place the cartridge on its end or upside down. Always place it with the label side facing upward.
7) Do not disassemble the cartridge.

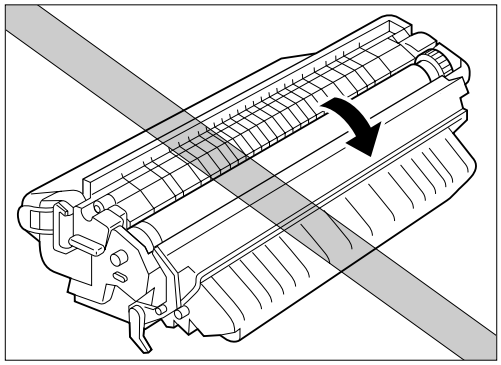


Figure 1-5-8

Note: If light (1500 lux) is exposed to the drum for 5 minutes, and it is left in a dark area for 5 minutes, it will recover to a normal state and will be no effect on prints. However be sure to not expose it to direct sunlight. The strength of sunrays are about 10000 lux to 30000 lux.

VI. MAINTENANCE AND SERVICING BY THE CUSTOMER

The customer should do the following maintenance to maximize printer performance.

Table 1-6-1

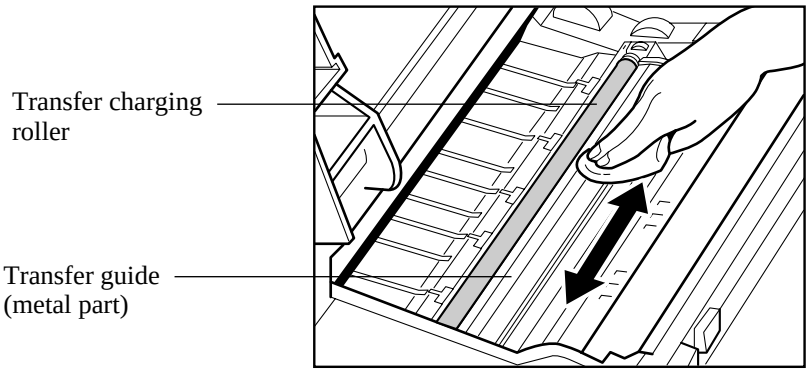
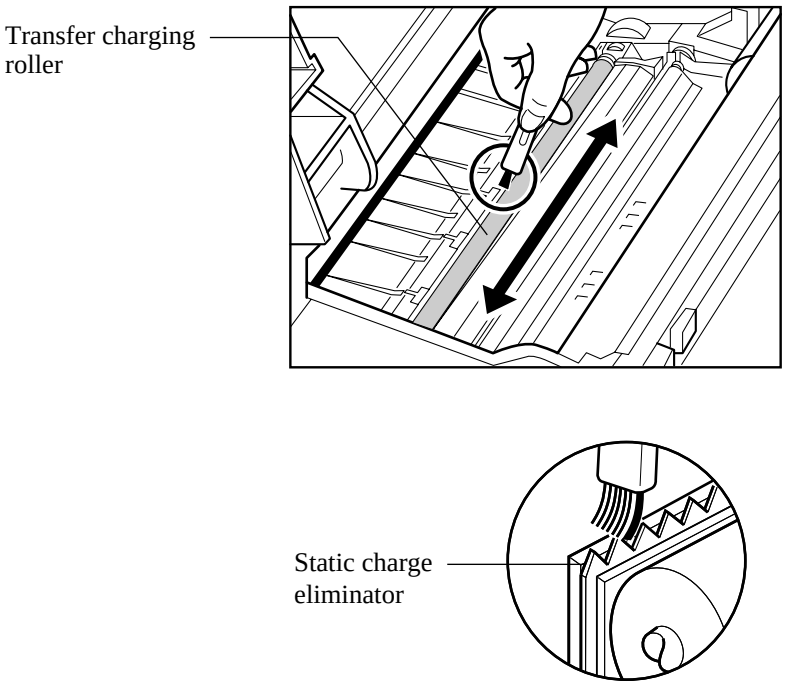
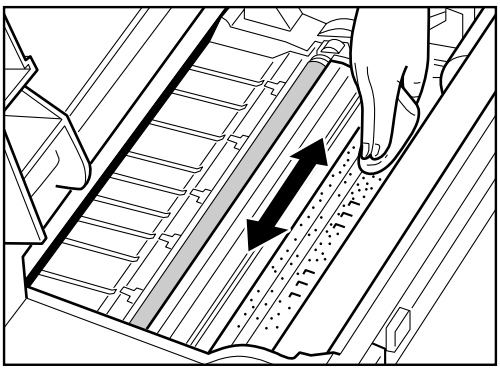
Item	Customer maintenance
Cartridge	Rock the cartridge to redistribute toner. If necessary relace it.
Transfer guide area	When replacing the cartridge, clean the transfer guide area with the soft dry cloth. 
Static charge eliminator	When replacing the cartridge, clean the static charge eliminator with the green cleaning brush in the printer. 

Table 1-6-2

Item	Customer maintenance
Registration roller area	When replacing the cartridge, clean the registration roller area with the soft dry cloth. 

VII. OPERATION

A. The Operation Panel

The operation panel is used to perform basic printer operations, make printer configuration changes that software applications cannot control, identify available typefaces, and check the status of the printer.

The operation panel consists of the status indication display, eight indicator lights, and seven menu and operation keys.

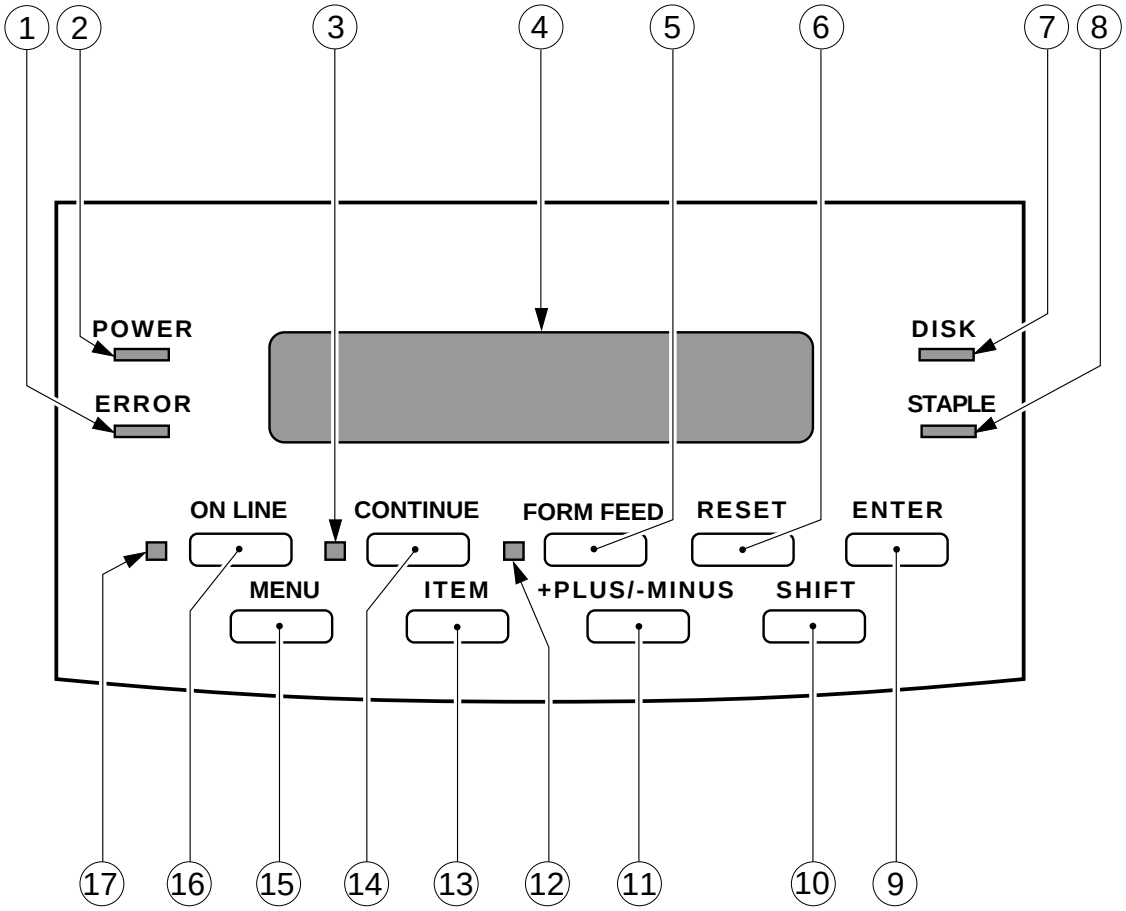


Figure 1-7-1

· ERROR indicator: 1

On:
An error has occurred and printing has stopped. Check the display for a message describing the problem.
Off:
Operation is normal and there is no error.

· POWER indicator: 2

On:
The printer is ready to print.
Flashing:
The printer is warming up. Wait until the light stays on before you start printing operations.
Off:
The printer cannot print.

· CONTINUE indicator: 3

On:
Indicates the CONTINUE button may be pressed to exit current condition. For instance, if the message TONER LOW appears in the display panel, press CONTINUE to continue printing but be sure to change the toner as soon as possible.
Off:
Operation is normal.

· Status indication display: 4

The two-line, 20-digit display tells you what is happening inside the printer and shows you the menus and settings which can be changed. The display keeps you informed about the printer's operation status, lets you make menu selections, warns you about problems and identifies errors.

· FORM FEED key: 5

Performs a FORM FEED and prints data remaining in the FORM printer. If the FORM FEED indicator is on, data remains in the printer (only with PCL). Press ON LINE to take the printer off-line. Press FORM FEED to print the remaining data.

· RESET key: 6

Accesses the RESET menu so you can select RESET PRINTER or RESET MENU. If you choose RESET PRINTER all resources in the memory (soft fonts, macros, stored page data, and so on) are erased, but the menu items selected are unaffected. If you choose RESET MENU the factory default values are restored for most menu items.

· DISK indicator: 7

On:
The disk is being accessed (for fonts, etc.).
Off:
The disk is not being accessed.

· STAPLE indicator: 8

On:
Stapling has been selected for the current print job.
Off:
Stapling has not been selected.

· **ENTER key: 9**

Saves a value you selected for an item in the menu. An asterisk (*) marks the value designated as the current default.

· **SHIFT key: 10**

Press SHIFT and another key to access the alternate function of dual-function keys. The two functions on dual function keys are separated by a slash in the key name on the printer control panel.

· **+PLUS/-MINUS key: 11**

With an item name displayed, press to +PLUS/-MINUS step through the item's values. Press and hold down SHIFT then press +PLUS/-MINUS to step through the values in reverse order. Some item have a large range of numbers from which to choose a value. For example, for COPIES you can set a value from 1 to 999. In this case, to rapidly step through the values, press and hold down +PLUS/-MINUS.

· **FORM FEED indicator: 12**

On:

Indicates that a page is currently being composed in the printers memory. To print the page before it is completed, take the printer off-line and press the FORM FEED key.

Off:

No print data is currently stored in the printer's memory.

· **ITEM key: 13**

With a menu name displayed, press the ITEM key to scroll through all the items on the menu and return to the first item. To scroll back through the items in the opposite direction, press the SHIFT and ITEM keys. Depending on what options you have installed, some items may not appear.

· **CONTINUE key: 14**

Restarts printing after the printer displays a message and halts printing. For most situations after you press CONTINUE, the message clears and printing resumes.

When the multi-purpose tray is used as a manual feed station (when MANUAL FEED=ON), you have to press the CONTINUE key every time you need to feed a single sheet of paper.

· **MENU key: 15**

With the printer off-line, press the MENU key to scroll through the menu names and return to the first menu name. To scroll back through the menu names in the opposite direction, press the SHIFT and MENU keys. Depending on what options have been installed, some menu names may not appear.

· **ON LINE key: 16**

Takes the printer off-line and back on-line. When the ON LINE indicator is on, the printer is on-line and ready to receive data and print. When the ON LINE indicator is off, the printer is off-line and the other keys on the control panel can be used to view and change settings.

· **ON LINE indicator: 17**

On:

The printer is on-line (power on, warmed up, and ready to receive data from the host computer for printing). Before you begin a print job, always check this indicator is on.

Flashing:

The printer is processig a print job. Do not turn the power off, otherwize you may lose print data.

Off:

The printer is off-line. You can now use the printer control panel keys to view and change settings. When off-line, the printer cannot accept data for printing.

B. Operation Panel Menus
You can access the following menus though the operation panel:

- PCL MENU
- PS MENU **(Note 1)**
- FEEDER MENU
- CONFIG MENU
- MEMCONFIG MENU **(Note 1)**
- PARALLEL MENU
- LOCALTALK MENU **(Note 2)**
- ETHERNET MENU **(Note 2)**
- TOKEN RING MENU **(Note 2)**
- TEST MENU
- LANGUAGE MENU

Notes: 1. Menus that appear after the PostScript option has been installed.
2. Menus that appear after an option has been installed such as Network modules.

1. Accessing and selecting menu items
Follow these steps to access the menus and make selections:

1. Check the control panel and be sure the JOB indicator is off.
2. Press the ON LINE key to set the printer off-line. The ON LINE indicator goes off.
3. Press the MENU key to display the name of the first menu. Press the MENU key until you see the MENU.
4. Press the ITEM key to display the name of the first item on the menu. Press the MENU key until you see the item.
5. Press the +PLUS/-MINUS key until you display the values you want to change.
6. If you want to change the setting, press the +PLUS/-MINUS key until the value you want is displayed. Then press the ENTER key.
7. Press the ON LINE key to set the printer on-line.

Table 1-7-1 list the Menu Operation Flow.

2. Restoring the default settings
There are several types of default settings:

- Factory default settings are those set for each menu item at the factory. The printer uses these settings changed.

- Temporary default settings are those set by the application software for the current print job.

- Permanent default settings are those set through the operation panel. These selections remain in effect even when the printer is turned off, or send a different request through the application.

3. Resetting the default values
The printer can be reset in three ways:

- The reset printer function clears the memory of all fonts, macros, and page information but does not affect the menu settings.

- The reset menu function performs a printer reset to clear all fonts, macros, and page information but returns some of the menu settings to their original factory defaults.

- A cold reset clears the memory and restores all menu settings to their factory settings with the exception of the page count value, multi-purpose tray page size, envelope feeder size, and display language.
  To perform a cold reset, press and hold down the ON LINE key while you turn on the printer. The printer displays the message COLD RESET followed by WARMING UP. When the printer comes on-line, the factory default settings are restored.

Menus Operation Flow

At :	Press :	To move :
Menu level	**MENU** **SHIFT** and **MENU**	Forward Back
Item level	**ITEM** **SHIFT** and **ITEM**	Forward Back
Value level	**+PLUS/-MENUs** **SHIFT** and **+PLUS/-MINUS**	Forward Back

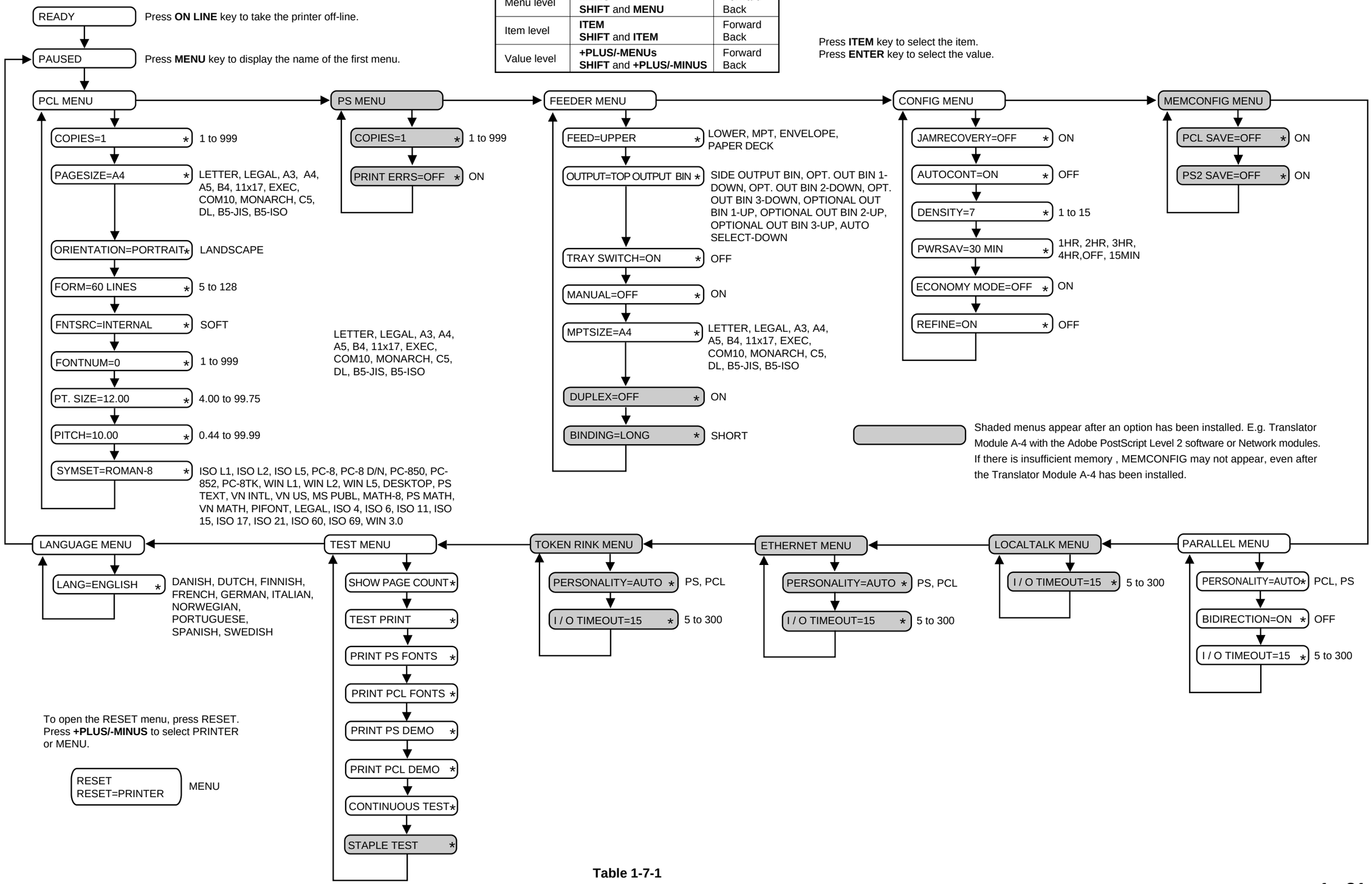

READY
Press **ON LINE** key to take the printer off-line.
PAUSED
Press **MENU** key to display the name of the first menu.
Press **ITEM** key to select the item.
Press **ENTER** key to select the value.
PCL MENU
COPIES=1 * 1 to 999
PAGESIZE=A4 * LETTER, LEGAL, A3, A4, A5, B4, 11x17, EXEC, COM10, MONARCH, C5, DL, B5-JIS, B5-ISO
ORIENTATION=PORTRAIT * LANDSCAPE
FORM=60 LINES * 5 to 128
FNTSRC=INTERNAL * SOFT
FONTNUM=0 * 1 to 999
PT. SIZE=12.00 * 4.00 to 99.75
PITCH=10.00 * 0.44 to 99.99
SYMSET=ROMAN-8 * ISO L1, ISO L2, ISO L5, PC-8, PC-8 D/N, PC-850, PC-852, PC-8TK, WIN L1, WIN L2, WIN L5, DESKTOP, PS TEXT, VN INTL, VN US, MS PUBL, MATH-8, PS MATH, VN MATH, PIFONT, LEGAL, ISO 4, ISO 6, ISO 11, ISO 15, ISO 17, ISO 21, ISO 60, ISO 69, WIN 3.0
PS MENU
COPIES=1 * 1 to 999
PRINT ERRS=OFF * ON
LETTER, LEGAL, A3, A4, A5, B4, 11x17, EXEC, COM10, MONARCH, C5, DL, B5-JIS, B5-ISO
FEEDER MENU
FEED=UPPER * LOWER, MPT, ENVELOPE, PAPER DECK
OUTPUT=TOP OUTPUT BIN * SIDE OUTPUT BIN, OPT. OUT BIN 1-DOWN, OPT. OUT BIN 2-DOWN, OPT. OUT BIN 3-DOWN, OPTIONAL OUT BIN 1-UP, OPTIONAL OUT BIN 2-UP, OPTIONAL OUT BIN 3-UP, AUTO SELECT-DOWN
TRAY SWITCH=ON * OFF
MANUAL=OFF * ON
MPTSIZE=A4 * LETTER, LEGAL, A3, A4, A5, B4, 11x17, EXEC, COM10, MONARCH, C5, DL, B5-JIS, B5-ISO
DUPLEX=OFF * ON
BINDING=LONG * SHORT
CONFIG MENU
JAMRECOVERY=OFF * ON
AUTOCONT=ON * OFF
DENSITY=7 * 1 to 15
PWRSAV=30 MIN * 1HR, 2HR, 3HR, 4HR,OFF, 15MIN
ECONOMY MODE=OFF * ON
REFINE=ON * OFF
MEMCONFIG MENU
PCL SAVE=OFF * ON
PS2 SAVE=OFF * ON
Shaded menus appear after an option has been installed. E.g. Translator Module A-4 with the Adobe PostScript Level 2 software or Network modules. If there is insufficient memory , MEMCONFIG may not appear, even after the Translator Module A-4 has been installed.
LANGUAGE MENU
LANG=ENGLISH * DANISH, DUTCH, FINNISH, FRENCH, GERMAN, ITALIAN, NORWEGIAN, PORTUGUESE, SPANISH, SWEDISH
TEST MENU
SHOW PAGE COUNT *
TEST PRINT *
PRINT PS FONTS *
PRINT PCL FONTS *
PRINT PS DEMO *
PRINT PCL DEMO *
CONTINUOUS TEST *
STAPLE TEST *
TOKEN RINK MENU
PERSONALITY=AUTO * PS, PCL
I / O TIMEOUT=15 * 5 to 300
ETHERNET MENU
PERSONALITY=AUTO * PS, PCL
I / O TIMEOUT=15 * 5 to 300
LOCALTALK MENU
I / O TIMEOUT=15 * 5 to 300
PARALLEL MENU
PERSONALITY=AUTO * PCL, PS
BIDIRECTION=ON * OFF
I / O TIMEOUT=15 * 5 to 300
To open the RESET menu, press RESET.
Press **+PLUS/-MINUS** to select PRINTER or MENU.
RESET
RESET=PRINTER
MENU

Table 1-7-1

CHAPTER 2

OPERATION AND TIMING

1. This chapter describes the printer functions, the relationships between mechanisms and circuits, and the timing of operations. Mechanical linkages are indicated by black and white lines (▬▬▬), the flow of control signals by solid arrows (⟶), and the flow of groups of signals by outline arrows (⇨).
2. An active-high signal is indicated by "H" or by a signal name without a slash in front of it, such as "PSNS." An active-low signal is indicated by "L" or by a signal name with a slash in front of, such as "/SCNON."

   A signal that is "H" or has a name without a slash is active at the supply voltage level (indicating that the signal is being output), and inactive at ground level (indicating that the signal is not being output).

   A signal that is "L" or has a slash in front of its name is active at ground level, and inactive at the supply voltage level.

   There is a microcomputer in this printer. But as the internal operation of the microcomputer cannot be checked, an explanation of the operation of the microcomputer has been left out.

   As it is assumed that no repair will be made to customer circuit boards, the explanation of board circuits is limited to an outline using block diagrams. So there are two types of circuit explanations; (1) everything from the sensor to the input sections of the major circuit boards, (2) everything from the output sections of the major circuit boards to the loads. These are explained with block diagrams according to the function.

I. BASIC OPERATION 2-1
II. ENGINE CONTROL SYSTEM 2-4
III. LASER/SCANNER SYSTEM 2-26
IV. IMAGE FORMATION SYSTEM 2-32
V. PICK-UP/FEED SYSTEM 2-42
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VII. OPTION CONTROL SYSTEM 2-64
VIII. ENVELOPE FEEDER 2-67
IX. DUPLEXING UNIT 2-71
X. PAPER DECK 2-81

I. BASIC OPERATION

A. Functions

Printer functions can be divided into six groups: the engine control system, the laser/scanner unit, the image formation system, the paper pick-up/feed system, the overall control system, and the option control system.

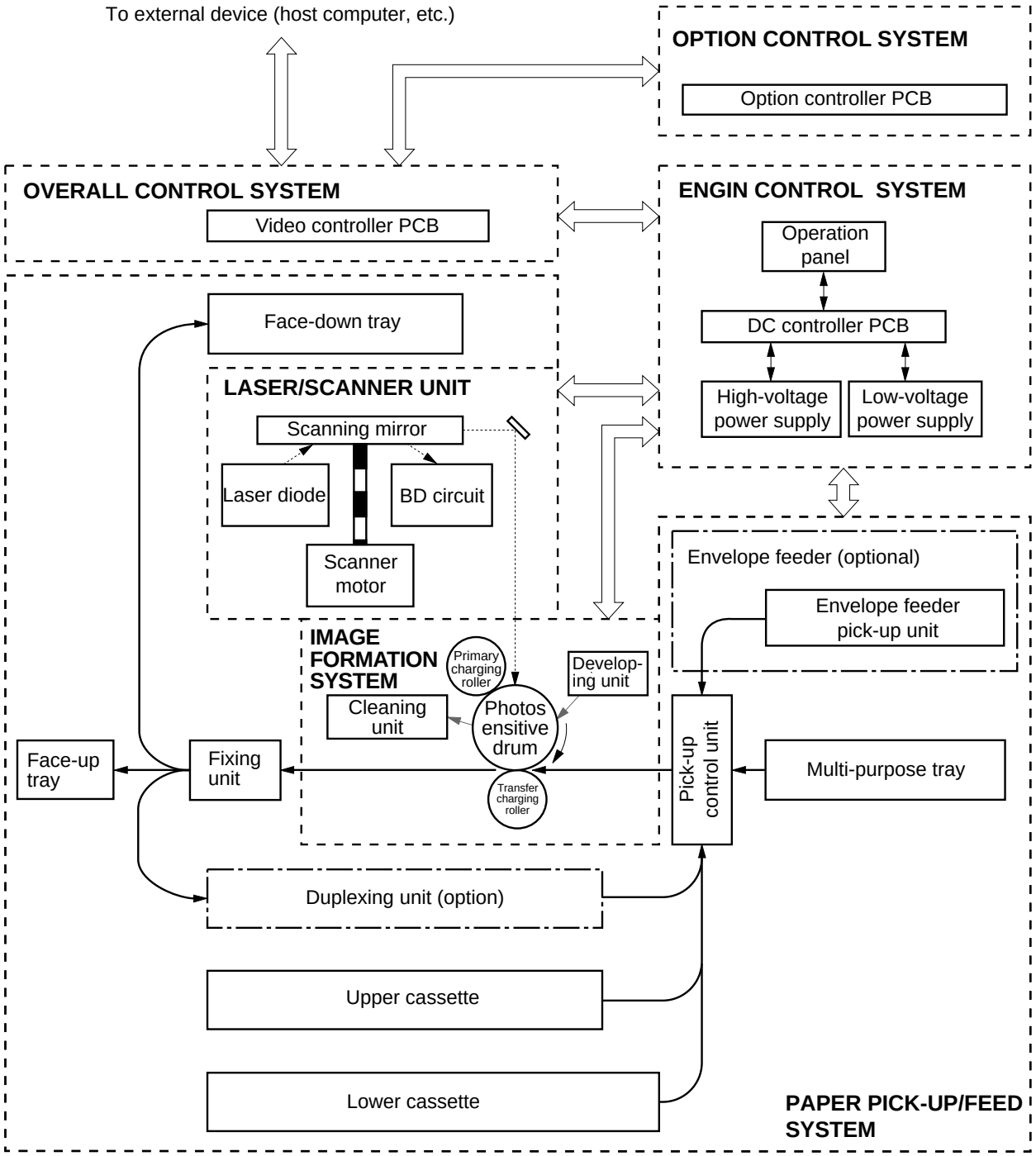


Figure 2-1-1

B. Basic operation sequences

Operation sequences of the printer are controlled by the microcomputer on the DC controller PCB. Descriptions of each period from ON until the main motor stops are as shown below. See the appendix for timing chart.

Table 2-1-1

Period		Purpose	Remark
WAIT (WAIT period)	From power-ON until the fixing roller temperature reaches 170˚C . (Less than 80 sec.)	Warms up the fixing rollers to put the printer in the standby mode. Cleans the transfer charging roller.	During this period, the printer checks if the cartridge is installed and if there is toner in it.
STBY (STANDBY)	From the end of the WAIT period until a /PRNT signal is input from the video controller, or from the end of the LSTR period until a /PRNT signal is input from the video controller or until the power is switched OFF.	Maintains the printing temperature of the fixing roller so that the printer is ready to print.	If the printer stays in the standby mode for longer than five hours, it drives the main motor for one second to rotate the fixing roller, to prevent it from deforming.
INTR (INITIAL ROTATIONS period)	After the /PRNT signal has been input from the video controller until the scanner motor becomes ready (about 7 seconds).	To stabilize the sensitivity of the drum in preparation for printing and to clean the transfer charging roller.	
PRINT (Print)	From the end of the INTR period until the primary DC voltage switches OFF.	To form an image on the photosensitive drum according to the VDO signal input from the video controller and to transfer the image to paper.	During this period, the printer maintains the printing temperature of the fixing rollers.
LSTR (LAST ROTATIONS period)	After the primary DC voltage turns OFF until the main motor stops.	To deliver the final page and to clean the transfer charging roller.	If a /PRNT signal is input from the video controller, the INITIAL ROTATIONS period begins immediately.

C. Power on sequences

Sequences of the printer from power ON until it enters the standby mode are as shown below.

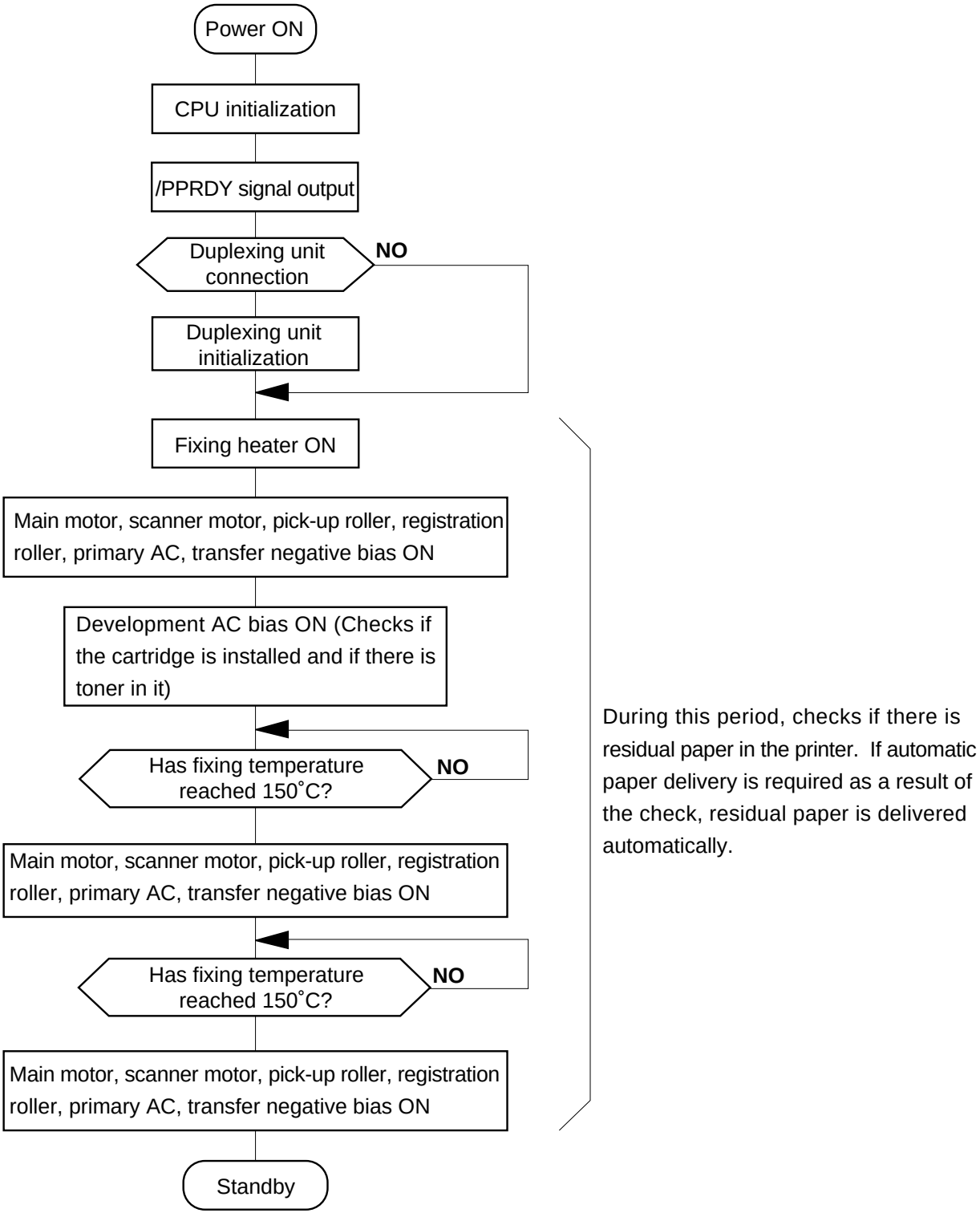

Power ON
CPU initialization
/PPRDY signal output
Duplexing unit connection
NO
Duplexing unit initialization
Fixing heater ON
Main motor, scanner motor, pick-up roller, registration roller, primary AC, transfer negative bias ON
Development AC bias ON (Checks if the cartridge is installed and if there is toner in it)
Has fixing temperature reached 150˚C?
NO
Main motor, scanner motor, pick-up roller, registration roller, primary AC, transfer negative bias ON
Has fixing temperature reached 150˚C?
NO
Main motor, scanner motor, pick-up roller, registration roller, primary AC, transfer negative bias ON
Standby
During this period, checks if there is residual paper in the printer. If automatic paper delivery is required as a result of the check, residual paper is delivered automatically.

Figure 2-1-2

II. ENGINE CONTROL SYSTEM

A. DC Controller circuit

1. Outline

Operation sequences of the printer are controlled by the CPU of this circuit. When DC power is supplied from the power supply by turning ON the power switch of the printer and the printer enters the standby mode, the CPU outputs the signals that drive the loads such as laser diode, motors, and solenoids, based on the print start command and image data.
The layout of major ICs is shown by Figure 2-2-1, and block diagram, Figure 2-2-2.

2. Explanation of operations of each block

a. CPU (IC201)

An 8-bit single chip microcomputer (HD6433388A79F) by Hitachi is used.
The CPU is a one-chip type in which ROM and RAM are built in, and controls the operation of the engine according to the control program stored in the ROM.

b. Expansion I/O (IC203)

Its functions are to control:
1) each sensor,
2) each motor,
3) each solenoid, and
4) each clutch.

c. Gate array (IC205)

Its functions are to:
1) control the laser/scanner,
2) control the video interface, and
3) communicate with the envelope feeder.

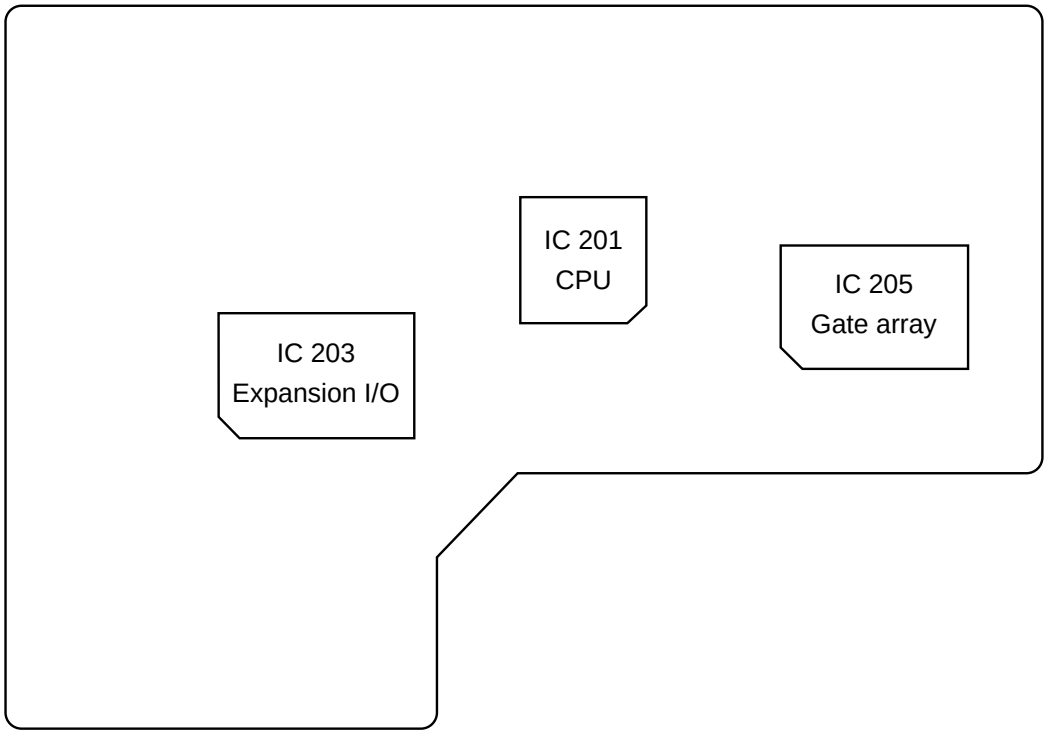


Figure 2-2-1

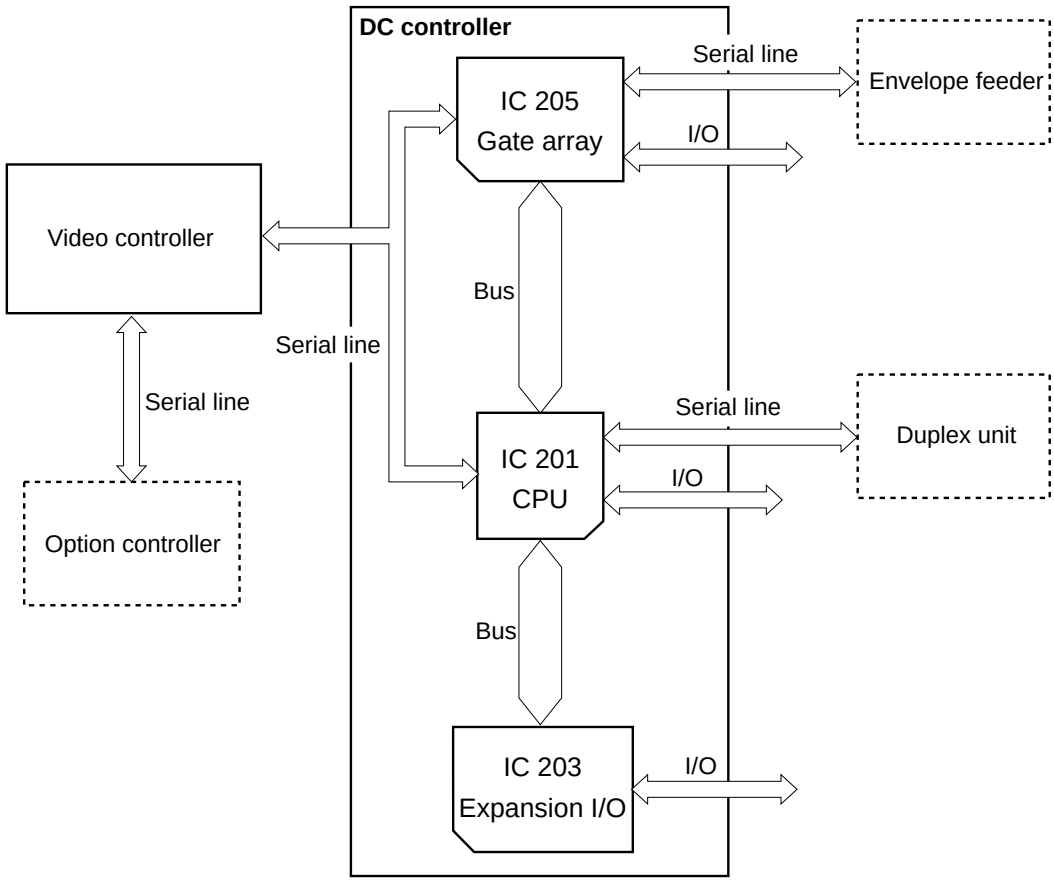


Figure 2-2-2

3. DC Controller Input/Output Signals

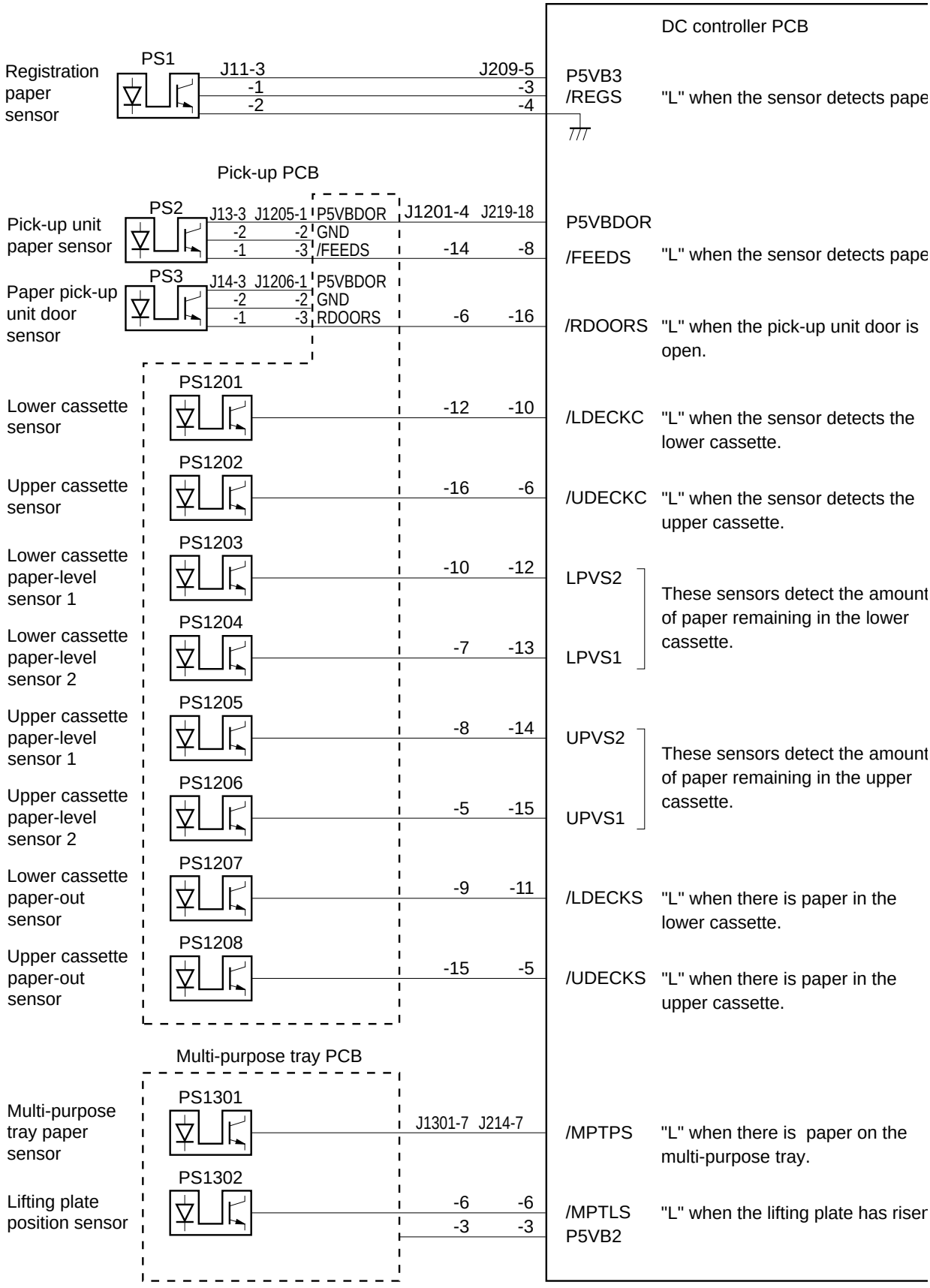


Figure 2-2-3

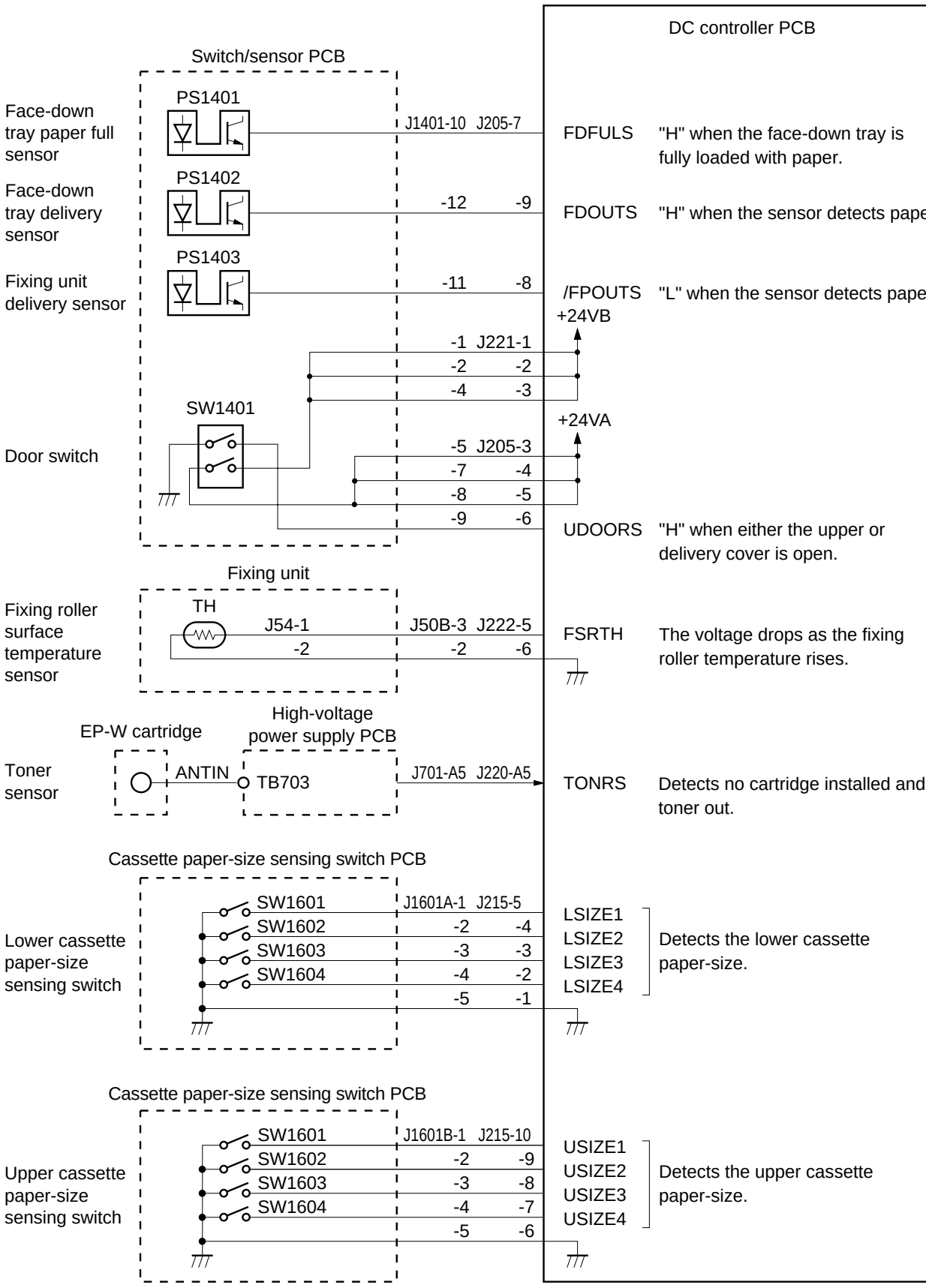

DC controller PCB
Switch/sensor PCB
PS1401
Face-down tray paper full sensor
J1401-10 J205-7
FDFULS
"H" when the face-down tray is fully loaded with paper.
PS1402
Face-down tray delivery sensor
-12 -9
FDOUTS
"H" when the sensor detects pape
PS1403
Fixing unit delivery sensor
-11 -8
/FPOUTS
"L" when the sensor detects pape
+24VB
-1 J221-1
-2 -2
-4 -3
SW1401
+24VA
Door switch
-5 J205-3
-7 -4
-8 -5
-9 -6
UDOORS
"H" when either the upper or delivery cover is open.
Fixing unit
TH
Fixing roller surface temperature sensor
J54-1
-2
J50B-3 J222-5
-2 -6
FSRTH
The voltage drops as the fixing roller temperature rises.
EP-W cartridge
High-voltage power supply PCB
Toner sensor
ANTIN
TB703
J701-A5 J220-A5
TONRS
Detects no cartridge installed and toner out.
Cassette paper-size sensing switch PCB
SW1601
SW1602
SW1603
SW1604
J1601A-1 J215-5
-2 -4
-3 -3
-4 -2
-5 -1
LSIZE1
LSIZE2
LSIZE3
LSIZE4
Lower cassette paper-size sensing switch
Detects the lower cassette paper-size.
Cassette paper-size sensing switch PCB
SW1601
SW1602
SW1603
SW1604
J1601B-1 J215-10
-2 -9
-3 -8
-4 -7
-5 -6
USIZE1
USIZE2
USIZE3
USIZE4
Upper cassette paper-size sensing switch
Detects the upper cassette paper-size.

Figure 2-2-4

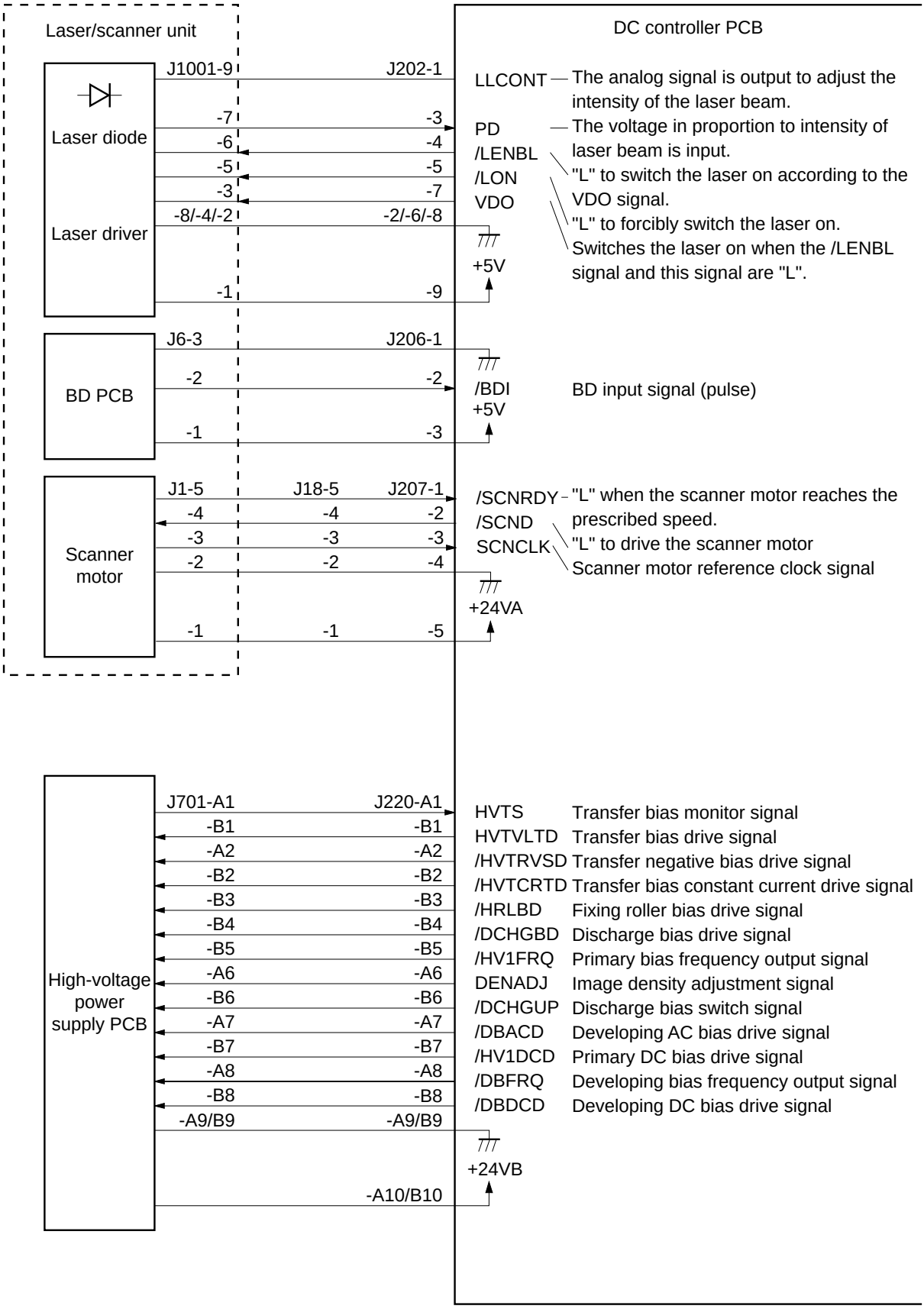

Laser/scanner unit
DC controller PCB
Laser diode
Laser driver
BD PCB
Scanner motor
High-voltage power supply PCB
J1001-9
J202-1
LLCONT
The analog signal is output to adjust the intensity of the laser beam.
-7
-3
PD
-6
-4
/LENBL
-5
-5
/LON
-3
-7
VDO
-8/-4/-2
-2/-6/-8
"L" to switch the laser on according to the VDO signal.
"L" to forcibly switch the laser on.
+5V
Switches the laser on when the /LENBL signal and this signal are "L".
-1
-9
J6-3
J206-1
-2
-2
/BDI
BD input signal (pulse)
+5V
-1
-3
J1-5
J18-5
J207-1
/SCNRDY
"L" when the scanner motor reaches the prescribed speed.
-4
-4
-2
/SCND
-3
-3
-3
SCNCLK
"L" to drive the scanner motor
Scanner motor reference clock signal
-2
-2
-4
+24VA
-1
-1
-5
J701-A1
J220-A1
HVTS
Transfer bias monitor signal
-B1
-B1
HVTVLTD
Transfer bias drive signal
-A2
-A2
/HVTRVSD
Transfer negative bias drive signal
-B2
-B2
/HVTCRTD
Transfer bias constant current drive signal
-B3
-B3
/HRLBD
Fixing roller bias drive signal
-B4
-B4
/DCHGBD
Discharge bias drive signal
-B5
-B5
/HV1FRQ
Primary bias frequency output signal
-A6
-A6
DENADJ
Image density adjustment signal
-B6
-B6
/DCHGUP
Discharge bias switch signal
-A7
-A7
/DBACD
Developing AC bias drive signal
-B7
-B7
/HV1DCD
Primary DC bias drive signal
-A8
-A8
/DBFRQ
Developing bias frequency output signal
-B8
-B8
/DBDCD
Developing DC bias drive signal
-A9/B9
-A9/B9
+24VB
-A10/B10

Figure 2-2-5

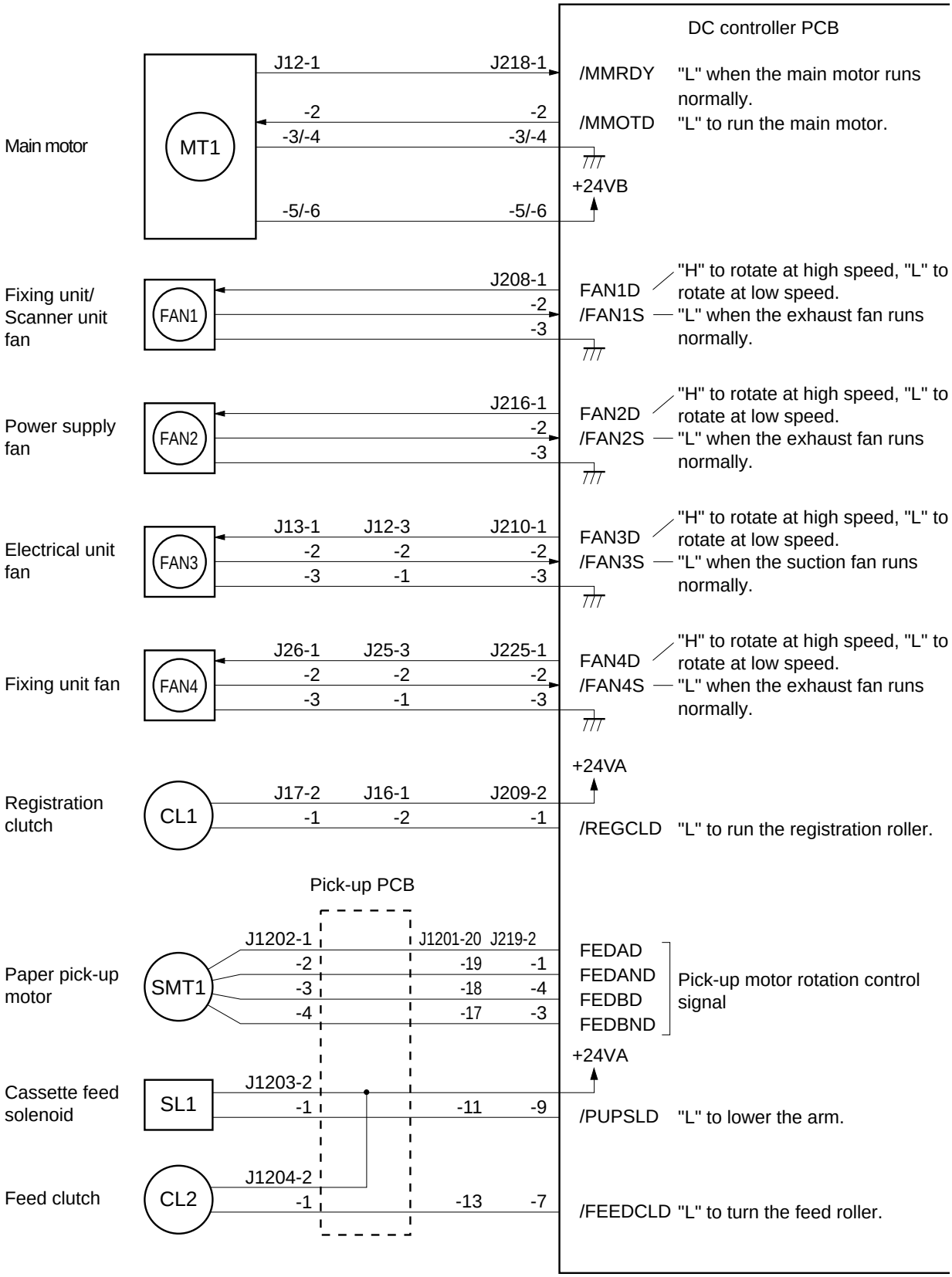

DC controller PCB
Main motor
MT1
J12-1
J218-1
-2
-2
-3/-4
-3/-4
-5/-6
-5/-6
/MMRDY
"L" when the main motor runs normally.
/MMOTD
"L" to run the main motor.
+24VB
Fixing unit/ Scanner unit fan
FAN1
J208-1
-2
-3
FAN1D
/FAN1S
"H" to rotate at high speed, "L" to rotate at low speed.
"L" when the exhaust fan runs normally.
Power supply fan
FAN2
J216-1
-2
-3
FAN2D
/FAN2S
"H" to rotate at high speed, "L" to rotate at low speed.
"L" when the exhaust fan runs normally.
Electrical unit fan
FAN3
J13-1
J12-3
J210-1
-2
-2
-2
-3
-1
-3
FAN3D
/FAN3S
"H" to rotate at high speed, "L" to rotate at low speed.
"L" when the suction fan runs normally.
Fixing unit fan
FAN4
J26-1
J25-3
J225-1
-2
-2
-2
-3
-1
-3
FAN4D
/FAN4S
"H" to rotate at high speed, "L" to rotate at low speed.
"L" when the exhaust fan runs normally.
+24VA
Registration clutch
CL1
J17-2
J16-1
J209-2
-1
-2
-1
/REGCLD
"L" to run the registration roller.
Pick-up PCB
Paper pick-up motor
SMT1
J1202-1
J1201-20
J219-2
-2
-19
-1
-3
-18
-4
-4
-17
-3
FEDAD
FEDAND
FEDBD
FEDBND
Pick-up motor rotation control signal
+24VA
Cassette feed solenoid
SL1
J1203-2
-1
-11
-9
/PUPSLD
"L" to lower the arm.
Feed clutch
CL2
J1204-2
-1
-13
-7
/FEEDCLD
"L" to turn the feed roller.

Figure 2-2-6

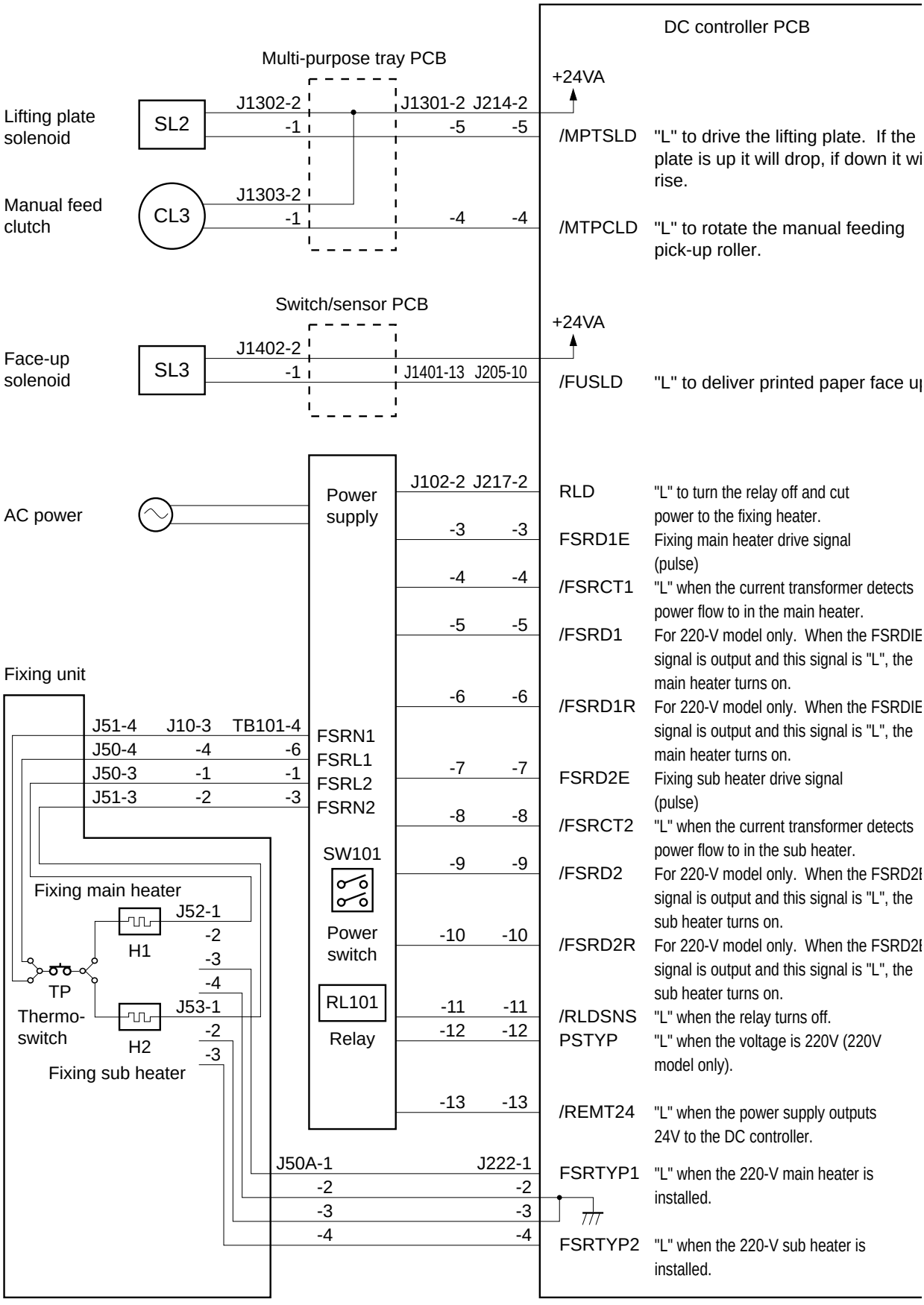

DC controller PCB
Multi-purpose tray PCB
+24VA
Lifting plate solenoid
SL2
J1302-2
-1
J1301-2 J214-2
-5 -5
/MPTSLD
"L" to drive the lifting plate. If the plate is up it will drop, if down it wi rise.
Manual feed clutch
CL3
J1303-2
-1
-4 -4
/MTPCLD
"L" to rotate the manual feeding pick-up roller.
Switch/sensor PCB
+24VA
Face-up solenoid
SL3
J1402-2
-1
J1401-13 J205-10
/FUSLD
"L" to deliver printed paper face u
AC power
Power supply
J102-2 J217-2
-3 -3
-4 -4
-5 -5
-6 -6
-7 -7
-8 -8
-9 -9
-10 -10
-11 -11
-12 -12
-13 -13
RLD
"L" to turn the relay off and cut power to the fixing heater.
FSRD1E
Fixing main heater drive signal (pulse)
/FSRCT1
"L" when the current transformer detects power flow to in the main heater.
/FSRD1
For 220-V model only. When the FSRDIE signal is output and this signal is "L", the main heater turns on.
/FSRD1R
For 220-V model only. When the FSRDIE signal is output and this signal is "L", the main heater turns on.
FSRD2E
Fixing sub heater drive signal (pulse)
/FSRCT2
"L" when the current transformer detects power flow to in the sub heater.
/FSRD2
For 220-V model only. When the FSRD2I signal is output and this signal is "L", the sub heater turns on.
/FSRD2R
For 220-V model only. When the FSRD2I signal is output and this signal is "L", the sub heater turns on.
/RLDSNS
"L" when the relay turns off.
PSTYP
"L" when the voltage is 220V (220V model only).
/REMT24
"L" when the power supply outputs 24V to the DC controller.
FSRTYP1
"L" when the 220-V main heater is installed.
FSRTYP2
"L" when the 220-V sub heater is installed.
Fixing unit
J51-4 J10-3 TB101-4
J50-4 -4 -6
J50-3 -1 -1
J51-3 -2 -3
FSRN1
FSRL1
FSRL2
FSRN2
SW101
Power switch
RL101
Relay
Fixing main heater
J52-1
-2
H1
TP
-3
-4
Thermo-switch
J53-1
-2
H2
-3
Fixing sub heater
J50A-1
-2
-3
-4
J222-1
-2
-3
-4

Figure 2-2-7

B. Fixing control

1. Fixing temperature control

The upper fixing roller contains two heaters: fixing main heater (H1: 500W) and fixing sub heater (H2: 500W). The fixing main heater heats the center of the upper roller, and the fixing sub heater heats both ends of the upper roller. The maximum power consumption is reduced by controlling the two heaters. Figure 2-2-8 shows the surface temperature distribution of the upper fixing roller.

The fixing roller heater for the 100V model of this printer is different from that to the 220V model.

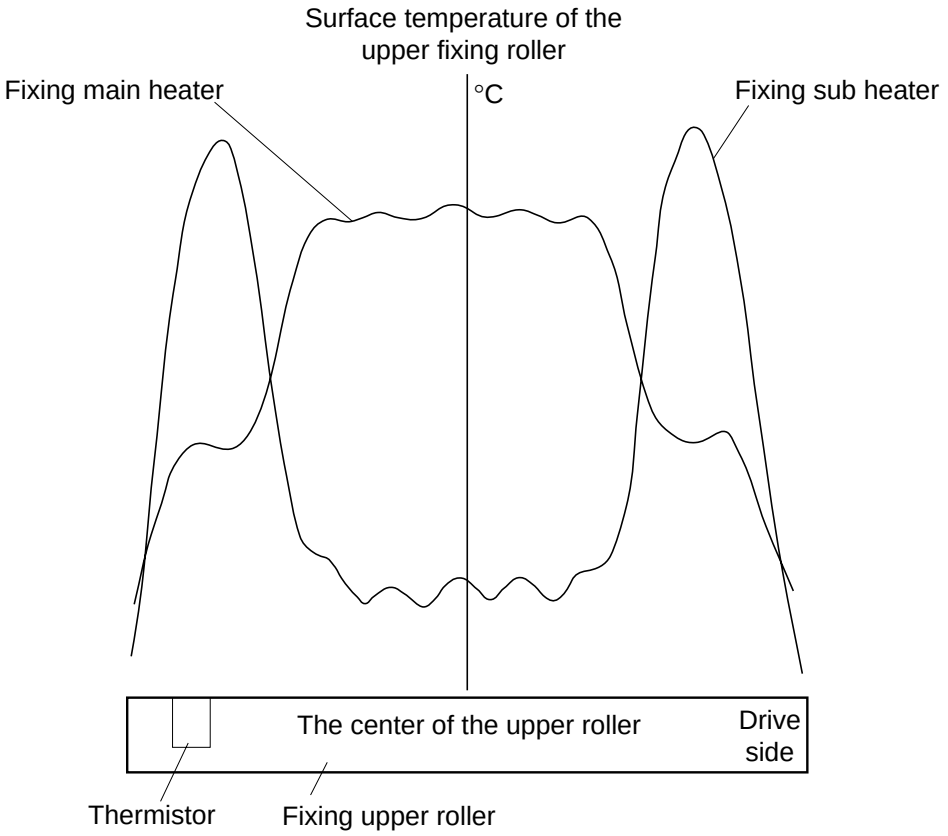


Figure 2-2-8

a. 100V model

The fixing temperature is detected by the thermistor (TH1) on the surface of the upper fixing roller. If the surface temperature rises, the TH1 resistance increases, and the voltage of the FIXING ROLLER TEMPERTURE SENSE signal (FSRTH) decreases.

Based on the FSRTH signal voltage, the microcomputer (CPU) on the DC controller controls the FIXING MAIN HEATER DRIVE signal (/FSRD1E) and FIXING SUB HEATER DRIVE signal (/FSRD2E) which maintain the surface temperature of the upper fixing roller at its correct value.

The CPU controls these signals according to the paper size, thickness, and the pick-up source. Table 2-2-1 lists the target temperatures of the upper fixing roller during waiting, standby, and printing.

Table 2-2-1

			Target temperature (˚C)	
			Normal temperature control	Initial warm-up temperature control
WAIT			170	180
STBY			169 - 177	169 - 177
PRINT	Cassette feed	A3/A4/B4 size	190	190
		Legal size	185	185
		Other size	180	180
	Manual feed		190	190

b. 220V model

The fixing temperature is detected by the thermistor (TH1) on the surface of the upper fixing roller. If the surface temperature rises, the TH1 resistance increases, and the voltage of the fixing roller temperature sense signal (FSRTH) decreases.

Based on the FSRTH signal voltage, the microcomputer (CPU) on the DC controller outputs the FIXING MAIN HEATER DRIVE signal (/FSRDIE) and then the FIXING SUB HEATER DRIVE signal (/FSRD2E).

When the FIXING MAIN HEATER DRIVE ENABLE signal (/FSRD1) or FIXING SUB HEATER DRIVE ENABLE signal (/FSRD2) is “L”, the fixing roller heater drive circuit outputs the /FSRD1E or /FSRD2E signal to the fixing main heater or fixing sub heater.

The CPU controls these signals according to the paper size, thickness, and pick-up source. Table 2-2-1 lists the target temperatures of the upper fixing roller during waiting, standby, and printing.

2. Protective function

The printer has a mechanism that check is that the rated voltage of the power supply matches the rated voltage of the fixing main heater and the fixing sub heater to prevent the installation of a wrong fixing unit. If they do not match, the DC controller regards them as different, stops the printer and reports it to the video controller.

The printer has three protection functions to prevent wrong activation of the fixing heater.

- The CPU monitors the thermistor voltage. If it is abnormal, the CPU identifies the fixing unit failure, and interrupts power to the fixing unit and reports it to the video controller.
- If the surface temperature of the upper fixing roller rises abnormally and the thermistor voltage falls below about 1.0V (230°C), the safety circuit in the power supply interrupts power to the fixing roller heater regardless of outputs from the CPU.
- If the surface temperature of the upper fixing roller rises abnormally and the thermoswitch temperature exceeds 200°C, the thermoswitch turns off and cuts power to the fixing roller heater.

3. Fixing unit failure detection

The CPU assumes a fixing unit failure in the following cases and reports it to the video controller.

a. The rated voltage of the power supply is different to the rated voltage of the fixing roller heater.

The CPU checks the POWER SUPPLY TYPE SENSE signal (PSTYPE), FIXING MAIN HEATER TYPE SENSE signal (FSRTYP1), and FIXING SUB HEATER TYPE SENSE signal (FSRTYP2) when the power is turned ON, but finds that they do not match. For example, if a 100-V power supply is connected to a 220-V fixing unit, the CPU assumes that the rated voltage does not match.

b. Thermistor broken wire detection

The CPU detects that the thermistor voltage is 4.6V or more when the thermistor voltage detection mode (**note**) is in the error detection mode, after the fixing roller heater is activated.

c. Heater broken wire detection

The CPU detects even after the fixing roller heater has been activated, that the FIXING MAIN HEATER CURRENT SENSE signal (/FSRCT1) and FIXING SUB HEATER CURRENT SENSE signal (/FSRCT2) are “H”.

d. Heater failure detection

The CPU detects that the FIXING MAIN HEATER TYPE SENSE signal (/FSRCT1) and FIXING SUB HEATER TYPE SENSE signal (/FSRCT2) are “L” when the power to the fixing roller heater is interrupted.

e. Maximum temperature detection

The CPU detects that the thermistor detected temperature exceeds about 230°C during standby or printing.

f. Warmup error detection

The CPU detects this error if the fixing unit does not reach the target temperature (see table 2-2-1) within 180 seconds after warmup starts.

g. Broken wire detection after the fixing unit is ready

The CPU detects whether the thermistor detected temperature is 150°C or less during standby or printing.

h. Relay operation detection

The CPU monitors the relay detection signal (/RLDSNS) and detects that the relay has been cut by the operation of the safety circuit the power supply when the temperature of the thermistor exceeds 230°C.

Note: There are two thermistor voltage detection modes: error detection mode and normal mode. In the error detection mode, sensitivity in the initial range (low temperature range) is increased to improve detection accuracy. When the thermistor temperature exceeds 60°C , it changes to the normal mode.

If the CPU detects a fixing unit failure, it does the following:

1) Stops the fixing roller heater.
2) Sets the RELAY DRIVE signal (RLD) to “L”, turns the relay in the power supply off to interrupt the power to the fixing roller heater.

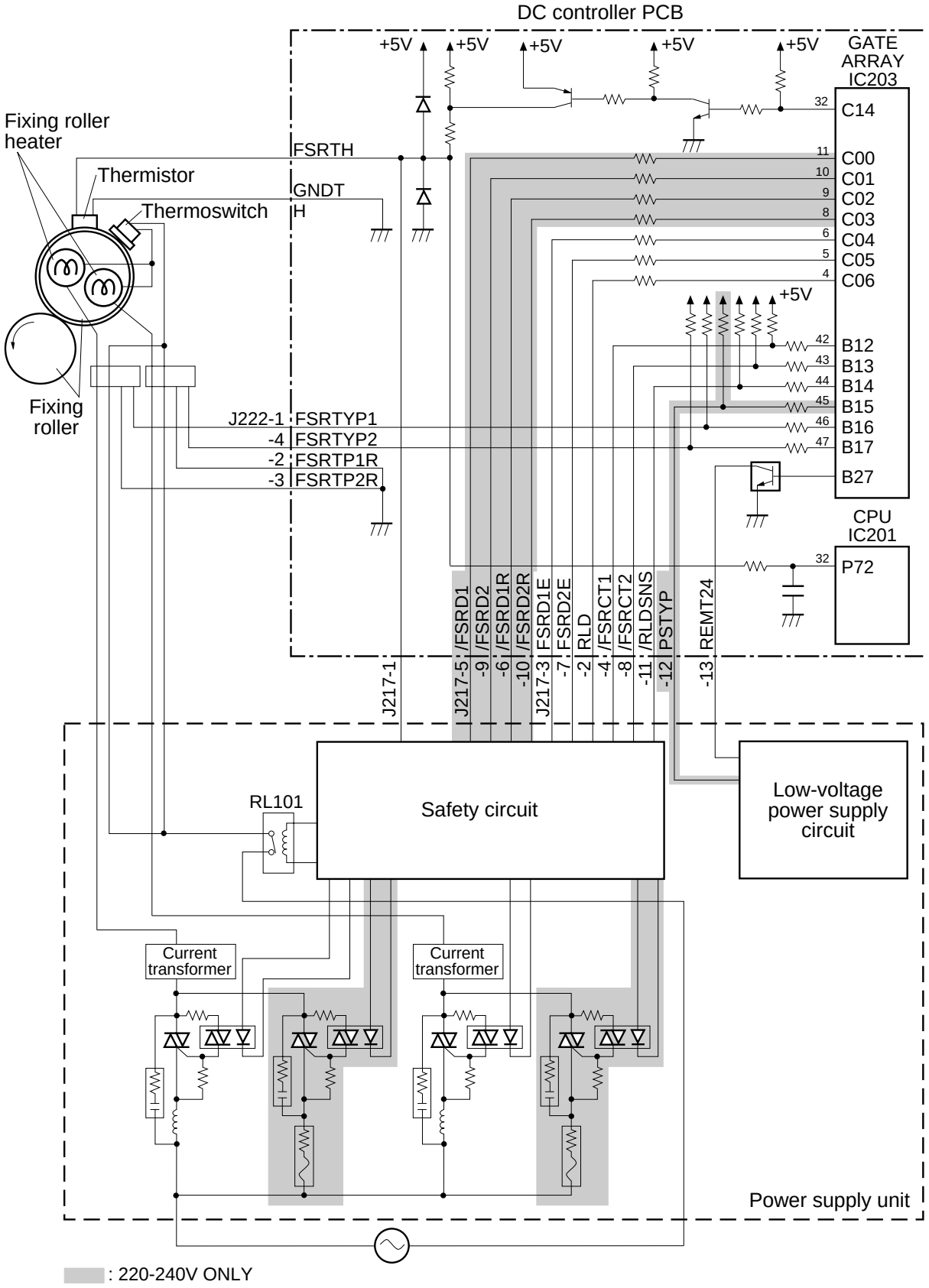

DC controller PCB
+5V
GATE ARRAY IC203
C14
C00
C01
C02
C03
C04
C05
C06
B12
B13
B14
B15
B16
B17
B27
CPU IC201
P72
Fixing roller heater
Thermistor
Thermoswitch
Fixing roller
FSRTH
GNDTH
J222-1 FSRTYP1
-4 FSRTYP2
-2 FSRTP1R
-3 FSRTP2R
J217-1
J217-5 /FSRD1
-9 /FSRD2
-6 /FSRD1R
-10 /FSRD2R
J217-3 FSRD1E
-7 FSRD2E
-2 RLD
-4 /FSRCT1
-8 /FSRCT2
-11 /RLDSNS
-12 PSTYP
-13 REMT24
RL101
Safety circuit
Low-voltage power supply circuit
Current transformer
Current transformer
Power supply unit
: 220-240V ONLY

Figure 2-2-9

3) Reports the fixing unit failure to the video controller.

4. Fixing roller heater start sequence

The sequence of operations from the power ON to the standby is as follows:

1) The CPU outputs the fixing sub heater drive signal and then the fixing main heater drive signal to prevent the surge current from increasing after the power is turned ON.
2) If the upper fixing roller temperature reaches 169 to 177°C (180°C for temperature adjustment in the morning), the CPU outputs the READY signal (/RDY) to the video controller. If this temperature is not reached within 180 seconds after the fixing roller heater turns on, the CPU assumes that a fixing unit failure has occurred.
3) After the /RDY signal is output, the CPU keeps the upper fixing roller temperature at 169 to 177°C until the PRINT signal (/PRNT) is sent from the video controller.

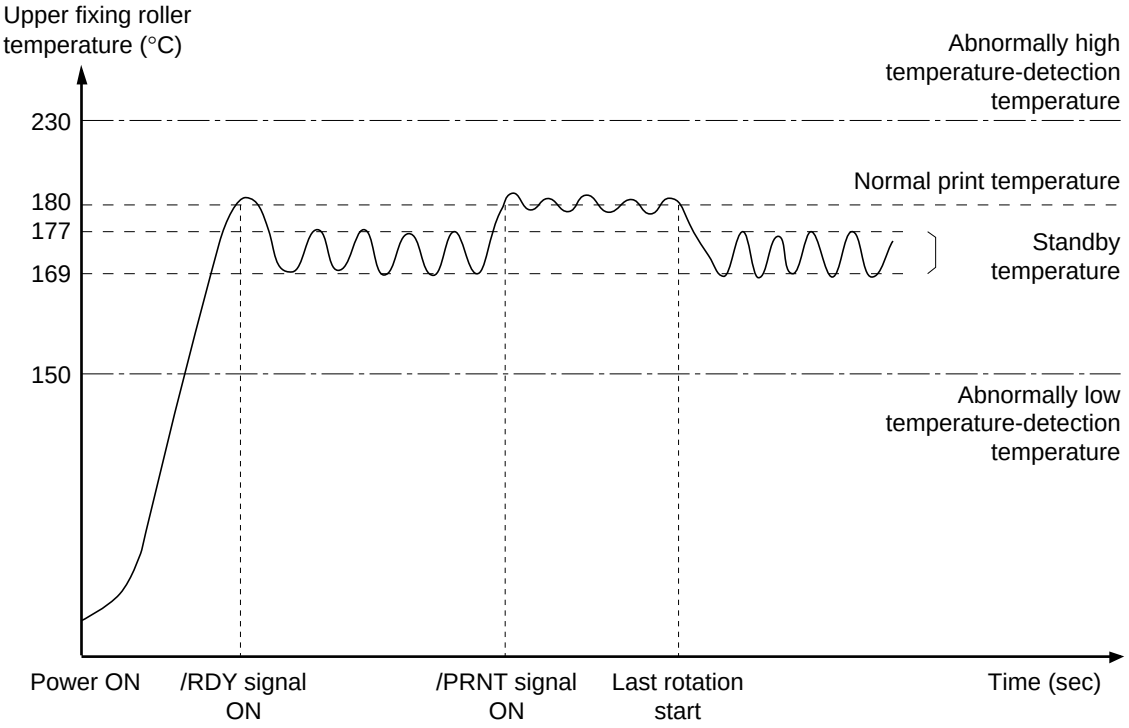
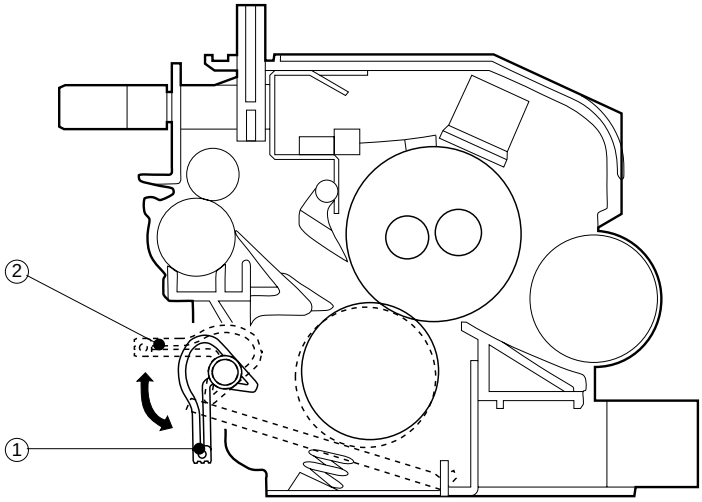


Figure 2-2-10

5. Envelope position lever function

This printer can adjust the nip width in two steps by changing the spring pressure of the lower fixing roller. If an envelope wrinkles after it is printed, set the envelope position lever to the envelope position.



① Normal mode
② Envelope mode

Figure 2-2-11

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C. High-Voltage Power Supply

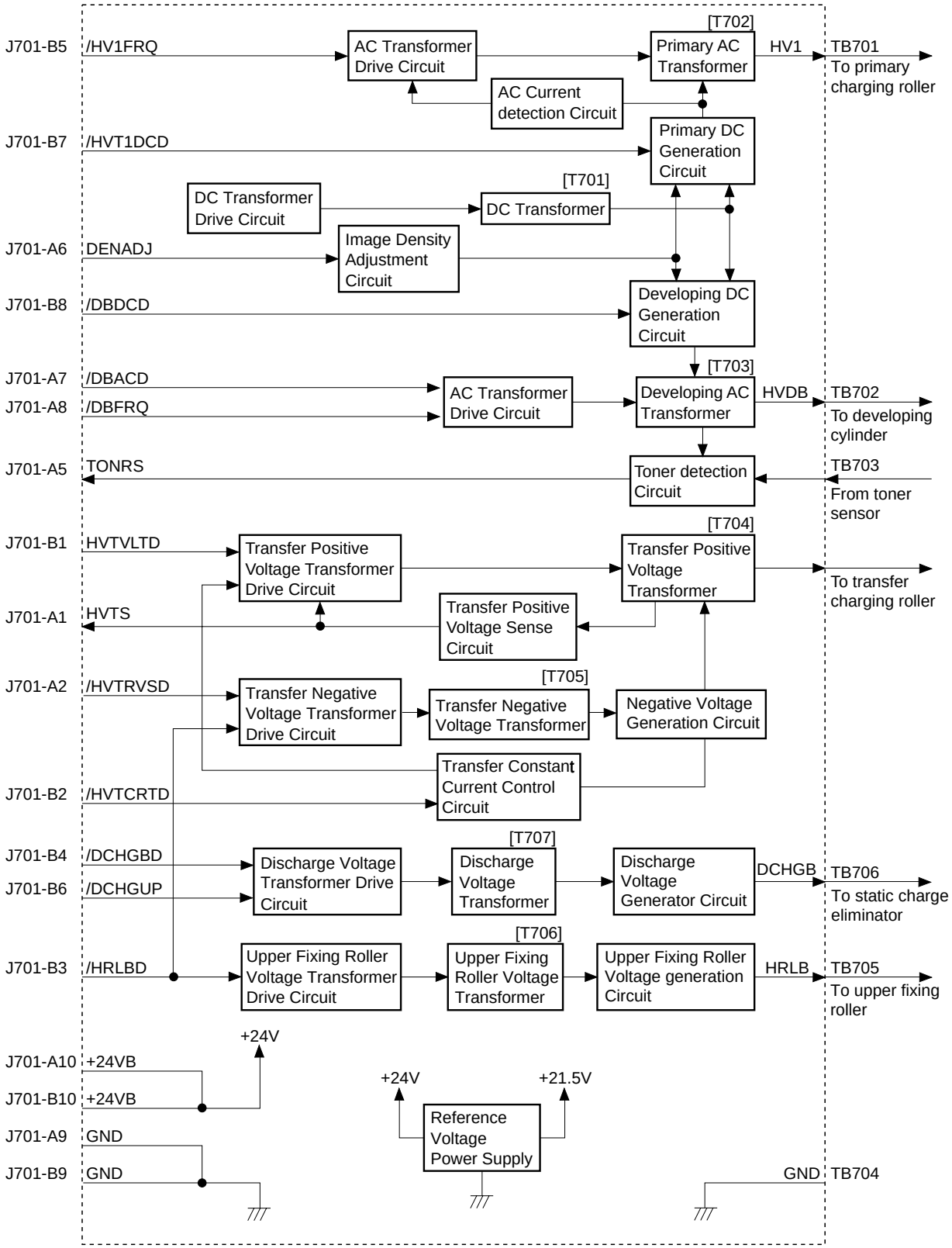

Figure 2-2-12

1. Outline

In response to the instruction from the microprocessor (CPU) on the DC controller PCB, the high-voltage power supply applies a voltage to the primary charging roller, developing cylinder, transfer charging roller, static charge eliminator, and upper fixing roller. It applies a voltage of DC voltage and AC voltage to the primary charging roller and developing cylinder, applies a positive or negative DC voltage to the transfer charging roller, and a negative DC voltage to the static charge eliminator and the upper fixing roller.

2. Principle of operation

a. Primary charging roller voltage generation

When the /PRNT signal sent from the video controller becomes "L", initial rotation starts, the DC controller outputs the primary bias FREQUENCY OUTPUT signal (/HV1FRQ). The circuit then applies the primary AC bias to the primary charging roller. After the specified period of time has elapsed the PRIMARY DC BIAS DRIVE signal (/HV1DCD) goes "L" and the voltage superimposing primary AC bias onto primary DC bias is applied to the primary charging roller.

The primary DC bias changes with the developing DC bias according to the IMAGE DENSITY ADJUSTMENT signal (DENADJ) sent from the DC controller.

b. Developing bias generation

When the DEVELOPING DC BIAS DRIVE signal (/DBDCD) from the DC controller becomes "L", a developing DC bias is applied to the developing cylinder.

When the VERTICAL SYNC signal (/VSYNC) is sent from the video controller, the DC controller outputs the DEVELOPING AC BIAS DRIVE signal (/DBACD) and DEVELOPING BIAS FREQUENCY OUTPUT signal (/DBFRQ). This circuit then applies the voltage superimposing developing DC bias and developing AC bias to the developing cylinder.

The developing DC bias changes according to the IMAGE DENSITY ADJUSTMENT signal (DENADJ), making the image density adjustable.

c. Transfer charging roller voltage generation

The negative, between-page, and print bias are applied to the transfer charging roller according to the print sequence.

The negative bias voltage is applied to the transfer charging roller at an appropriate timing to move the toner attached to the transfer charging roller onto the photosensitive drum to clean the roller.

For the between-page bias, a positive low voltage is applied to the transfer charging roller at an appropriate timing so that the toner remaining on the photosensitive drum is not attracted to the transfer charging roller.

For print bias, a positive voltage is applied to the transfer charging roller in order to transfer the toner on the photosensitive drum surface to the paper.

When the /PRNT signal sent from the video controller becomes "L", initial rotation starts and a negative bias is applied to the roller for a certain time to clean the transfer charging roller. Between-page bias is then applied, and a print bias is applied to the transfer charging roller after the prescribed time has elapsed since the /VSYNC signal going "L".

A print bias is applied during the print sequence to transfer the toner onto the paper. A between-page bias is applied between pages.

After the completion of printing, a between-page bias and a negative bias are applied again to clean the transfer charging roller.

d. Generation of print voltage to the discharger

2 voltage loads, high and low output bias are applied to the discharger according to the various print sequences.

The discharger bias drive signal (/DCHGBD) output from the DC Controller is "L", and when the discharger bias switch signal (/DCHGUP) turns "H" the low output bias changes to "L" and

the circuit applies a high voltage output bias. The high voltage output bias is applied only at the trailing edge of a single side print and during the second side of a duplex print.

e. Toner sensing/cartridge sensing

The EP-W cartridge has a toner sensor.

The DC controller detects the toner level and whether a cartridge is installed when the developing AC bias is applied to the developing cylinder by the DEVELOPING AC BIAS DRIVE signal by checking the TONER LEVEL signal (TONRS) voltage.

D. Power Supply

1. Outline

AC power is supplied to the low-voltage power supply when the main switch (SW101) is turned ON. The low-voltage power supply generates the required +24VDC and +5VD for the printer. +24VDC is supplied to the high-voltage power supply PCB to drive the main motor, scanner motor, and fans. +5VDC is used for sensors and ICs on the DC controller PCB.

+24VDC is divided into +24VA which is normally supplied from the power supply and +24VB which is shut OFF when the door switch (SW1401) turns OFF when the upper or delivery covers are opened.

+5VDC is divided into +5V which is normally supplied to the ICs on the DC controller PCB from the power supply and +5V for power-saving mode (P5VB1, P5BV2, P5VB3, and P5VBDOR). Supply of +5V for the power-saving mode is stopped when the sleep command is received from the video controller. During standby mode and periods when printing is not possible (when /RDY signal is "H"), the +5V is supplied off and on.

The DC controller PCB generates +5VC and supplies it to the laser driver.

This is shown in the block diagram below.

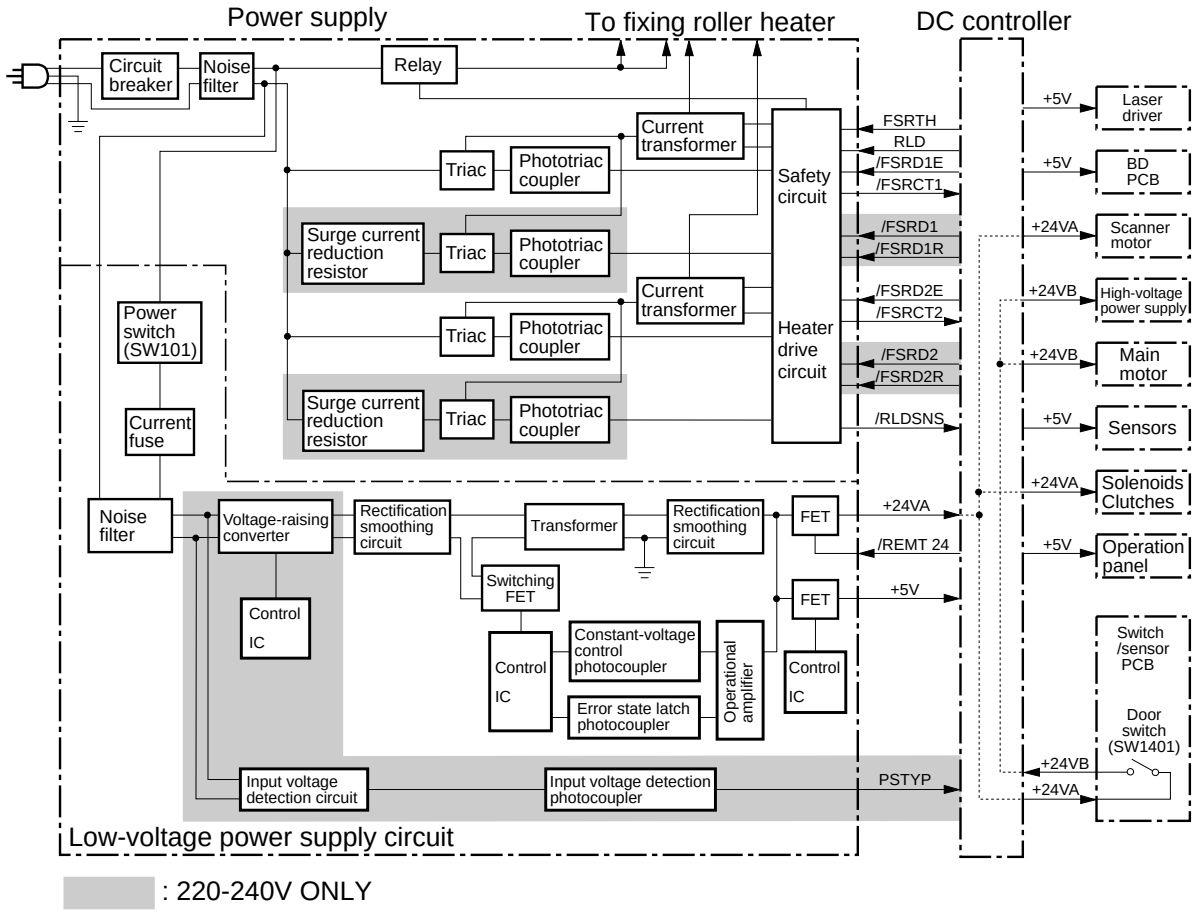

Figure 2-2-13

2. Protective Function

If a short circuit or other problems on the load side cause an excessive current flow from the +24VDC or +5VDC power supplies, the excess-current protection system automatically shuts off the output voltage to protect the power supplies.

If the excess-current protection system is active and the power supply circuit does not output DC voltage, it is necessary to turn the power switch to OFF, correct the problem in the faulty load, then power the printer ON again.

If excess-current flows through the AC line, the circuit breaker in the power supply turns OFF to cut off the output voltage.

E. Video Interface Control

1. Outline

To connect the printer to an external device, such as a host computer, a video controller PCB (interface PCB) is needed.

This section explains the kinds of interface signals exchanged between the printer and the video controller PCB, and gives information concerning the sequence of printer operation making use of interface signals.

a. System block diagram

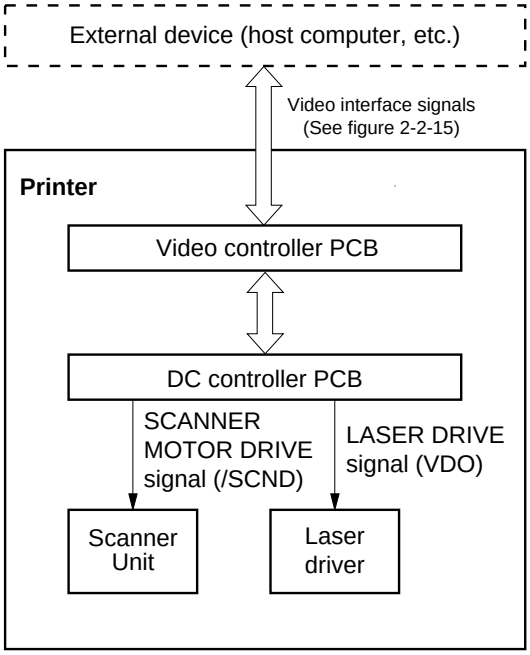

Figure 2-2-14

b. Video interface signals

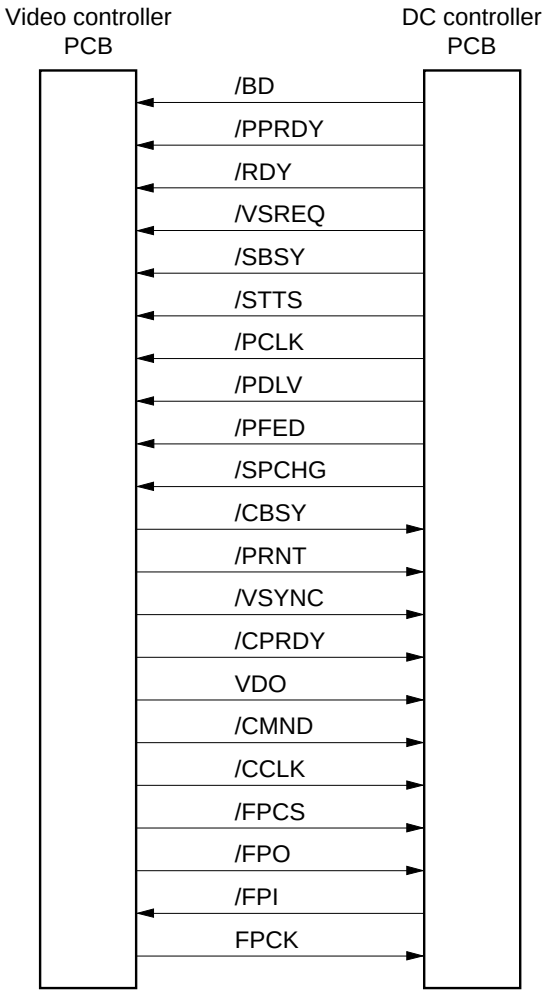

Figure 2-2-15

2. Operation

When the power is switched ON, the printer enters WAIT mode.

At the end of the WAIT mode, the DC controller sends the READY signal (/RDY) to the video controller to inform it that printer is ready to print.

When the /RDY signal is "L" and data for a page is prepared, the video controller sends the PRINT signal (/PRNT) to the DC controller.

When the DC controller receives the /PRNT signal, it starts the operation of the INITIAL ROTATIONS (INTR) period.

At the end of the INTR period, the DC controller sends the VERTICAL SYNC REQUEST signal (/VSREQ) to the video controller.

The video controller receives the /VSREQ signal, and sends the VERTICAL SYNC signal (/VSYNC) to the DC controller. When the /VSYNC signal is received, the print sequence is started.

The video controller sends the VIDEO signal (VDO) synchronized with the HORIZONTAL SYNC signal (/BD) and VERTICAL SYNC signal (/VSYNC) from the DC controller to the laser driver through the DC controller.

In response to the VDO signal, the laser driver switches the laser diode ON and OFF.

The laser beam is scanned repeatedly across the photosensitive drum with the scanning mirror to form the latent electrostatic image of the original image.

The latent electrostatic image on the photosensitive drum is transferred onto the paper in the electronic photographic process, and the paper is sent out through the face-down or face-up trays.

When a page is being printed, the DC controller checks for other /PRNT or /VSYNC signals from the video controller.

If none have arrived, the DC controller begins operation of the last rotations period (LSTR). At the end of this period, the printer enters standby (STBY) mode.

If other /PRNT or /VSYNC signals arrive-during printing, the print sequence continues. The last rotations operation is performed and the printer enters standby mode.

III. LASER/SCANNER SYSTEM

A. Outline

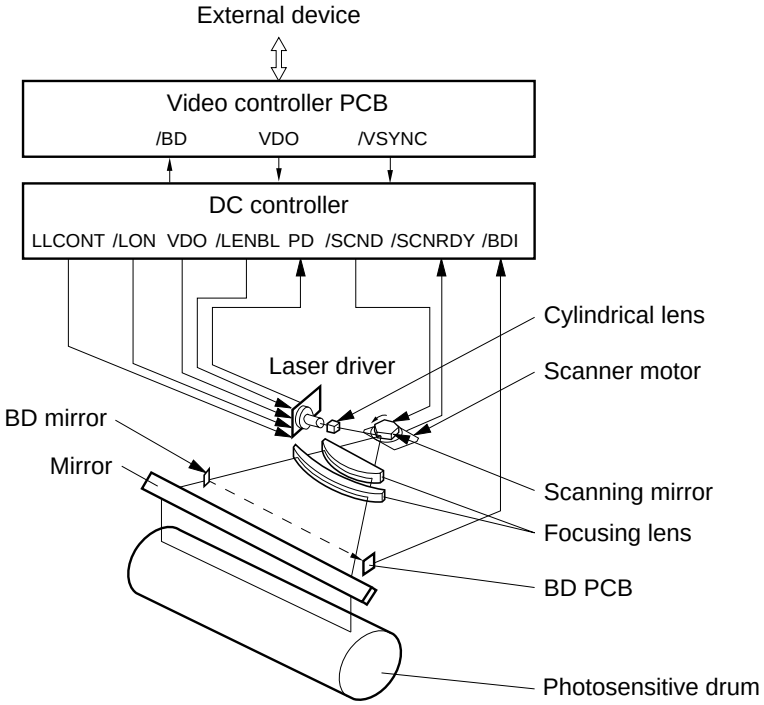

Figure 2-3-1

When the DC controller receives a print signal (/PRNT) from the video controller, the DC controller automatically stabilizes the intensity of the laser beam (automatic laser power control: See page 2-27). The DC controller then receives the VIDEO signal (VDO) from the video controller and sends it to the laser driver in the laser/scanner unit.

The laser driver turns the laser diode on and off according to the VDO signal and generates the modulated laser beam only when the VIDEO DATA ENABLE signal (/LENBL) from the DC controller is “L”.

The modulated laser beam is aligned by a collimator lens and a cylindrical lens into a parallel beam that strikes the scanning mirror that is rotating at a constant speed.

The beam reflected from the mirror is brought to a point of focus on the photosensitive drum by the focusing lens located after the scanning mirror.

As the scanning mirror rotates at a constant speed, the beam is scanned across the drum at a constant speed.

The drum also rotates at a constant speed allowing the laser beam to form an image on the drum's surface.

B. Laser Control Circuit

1. Outline

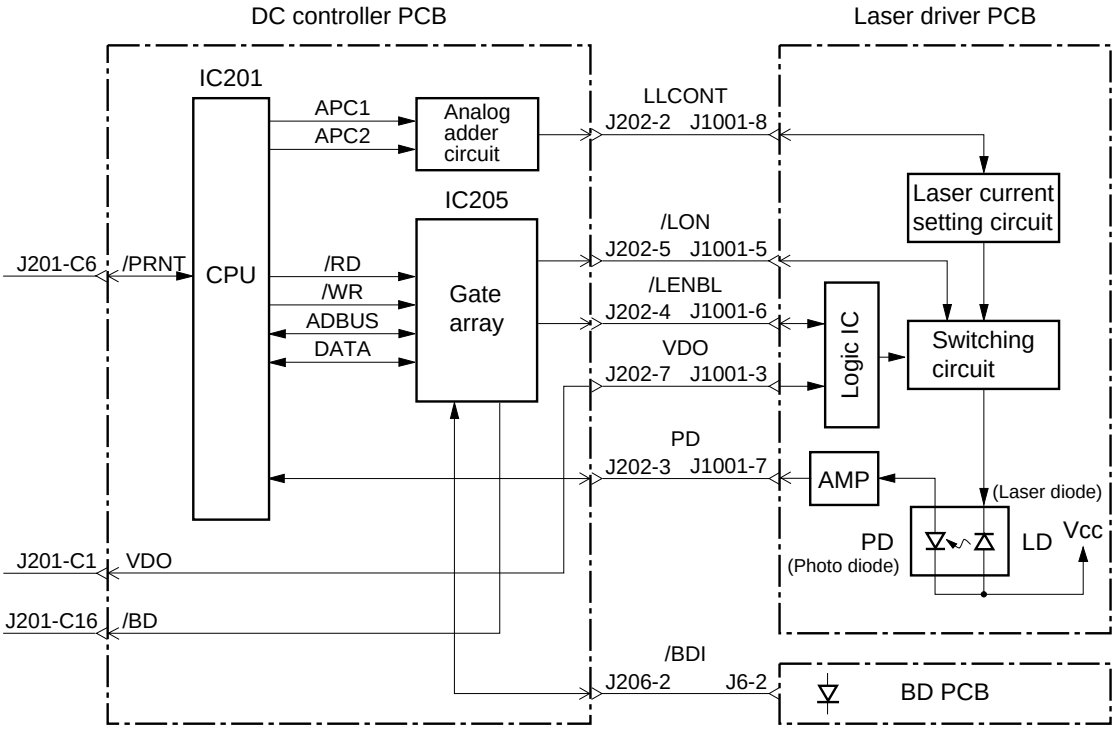

Figure 2-3-2

This circuit switches the laser diode (LD) ON and OFF at a constant intensity in response to the VDO signal sent from the video controller.

The VDO signal sent from the video controller to the DC controller is sent as is, to the switching circuit in the laser driver circuit.

The microprocessor (CPU: IC201) outputs the INTENSITY CONTROL signals (APC1, APC2) from DA output ports to the analog adder circuit according to the internal data. The output from analog adder circuit is sent to the laser current setting circuit in the laser driver as the LASER OUTPUT signal (LLCONT).

This analog adder circuit performs weighted addition for the APC1 signal and APC2 signal at a ratio of approximately 8:1. The CPU adjusts the value of the LLCONT signal by changing the APC1 signal for rough adjustment and APC2 signal for fine adjustment.

The output current of the laser current setting circuit is sent to the switching circuit and the laser diode is switched ON and OFF in response to the VDO signal when the VIDEO DATA ENABLE signal (/LENBL) (described later) is “L”.

2. Automatic laser emisison control

The CPU on the DC controller controls the intensity of the laser beam according to the APC1 signal (laser beam intensity rough adjustment signal) and APC2 signal (laser beam intensity fine adjustment signal). The analog adder circuit adds the APC1 and APC2 signals, generates a LASER OUTPUT signal (LLCONT), and outputs it to the laser current setting circuit in the laser driver.

The CPU performs the automatic laser power control (APC) to let the laser diode emit constant light, then adjusts the LLCONT signal.

This control is divided into initial APC and between-page APC.

a. Initial APC

Initial APC is performed to increase the intensity of the laser beam from zero to near the target value during initial rotation, and to obtain the increase rate and between-page APC initial value.

After the CPU sets the FORCED LASER ON signal (/LON) to “L”, the CPU changes the APC1 signal (rough adjustment) and lets the LLCONT signal gradually rise. As the laser current increases, the laser diode (LD) begins emitting light.

The intensity of the laser diode (LD) is detected by the photo diode (PD). After amplification, the output voltage is fed back to the CPU as the LASER BEAM INTENSITY DETECTION signal (PD).

The CPU ends initial APC when the input value of the PD signal was over the target value stored in the CPU.

b. Between-page APC

Between-page APC is carried out for each page immediately before writing a VIDEO signal (VDO) onto the drum in order to obtain the target value based on the initial value, and the increase rate obtained by the initial APC.

The CPU sets the values of the initial APC as the initial values. It calculates the increase rate to obtain the target value, from the increase rate obtained from the initial APC, and determine the output values of the APC1 signal (for rough adjustment) and APC2 signal (for fine adjustment).

The CPU then sets the FORCED LASER ON signal (/LON) to "L", outputs the APC1 and APC2 signals, compares the input value of the PD signal with the target value, and optimizes the intensity of the laser beam.

3. Horizontal synchronization control

The gate array (IC205) generates an UNBLANKING signal based on the BD INPUT signal (/BDI) sent from the BD PCB of the laser/scanner unit.

IC205 sets the FORCIBLE LASER ON signal (/LON) to “L” in the unblanking period. When the /LON signal is “L”, the laser driver turns the laser diode on.

The laser beam emitted from the /LON signal strikes the small fixed BD mirror located in the light path where the laser beam scanning starts, and inputs to the BD PCB in the laser/scanner unit.

The BD PCB detects the laser beam, generates a BD INPUT signal (/BDI), and sends it to the gate array on the DC controller PCB. The gate array generates the HORIZONTAL SYNCHRONIZATION signal (/BD) according to the /BDI signal and sends it to the video controller.

4. Laser diode emission control

Laser diode emission is controlled by using the VIDEO signal (VDO) sent from the video controller to the printer and the paper size data.

The paper size data is supplied to the CPU from the cassette-size sensing switch for cassette feed and by the paper size specification command from the video controller for manual feed.

The VDO signal is sent from the DC controller to the laser driver.

The CPU sends data to the gate array (IC205) to generate the IMAGE TOP ERASE AND BOTTOM ERASE signal (TOPE) and HORIZONTAL IMAGE MASK signal (MSK) according to the paper size data from IC205. The TOPE and MSK are used by IC205 and are not output externally.

To inhibit the laser beam from writing on non-image area during the non-unblanking period, IC205 makes the VIDEO DATA ENABLE signal (/LENBL) “L” only when the TOPE and MSK signals are “L”. The laser driver switches the laser ON when the /LENBL and VDO signals are “L”.

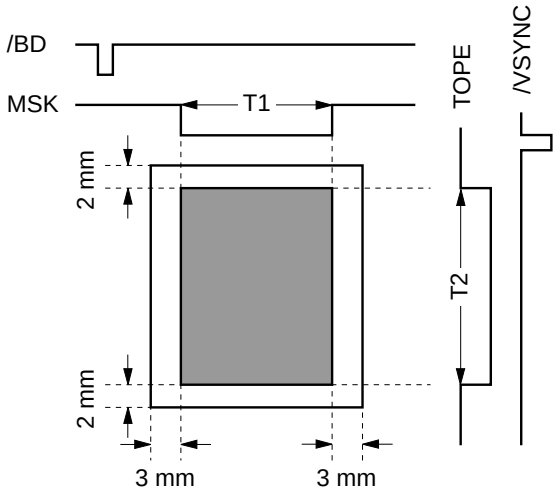

Figure 2-3-3

Notes: **1.** ■ Indicates the area where the laser beam writes on the drum.
2. If no paper size is specified by the paper size specification command from the video controller during manual feed, the printer does not recognize the paper width. So the T1 and T2 values are assumed to be UNIVERSAL size (297.0mm × 635.0mm), the maximum paper width for this printer.
3. The CPU detects when the trailing edge of the paper passes through the registration paper sensor (PS1) determining the paper size of the loaded paper. The image is then masked according to the detected paper size.

C. Scanning System

Figure 2-3-4 shows the scanner motor control circuit.

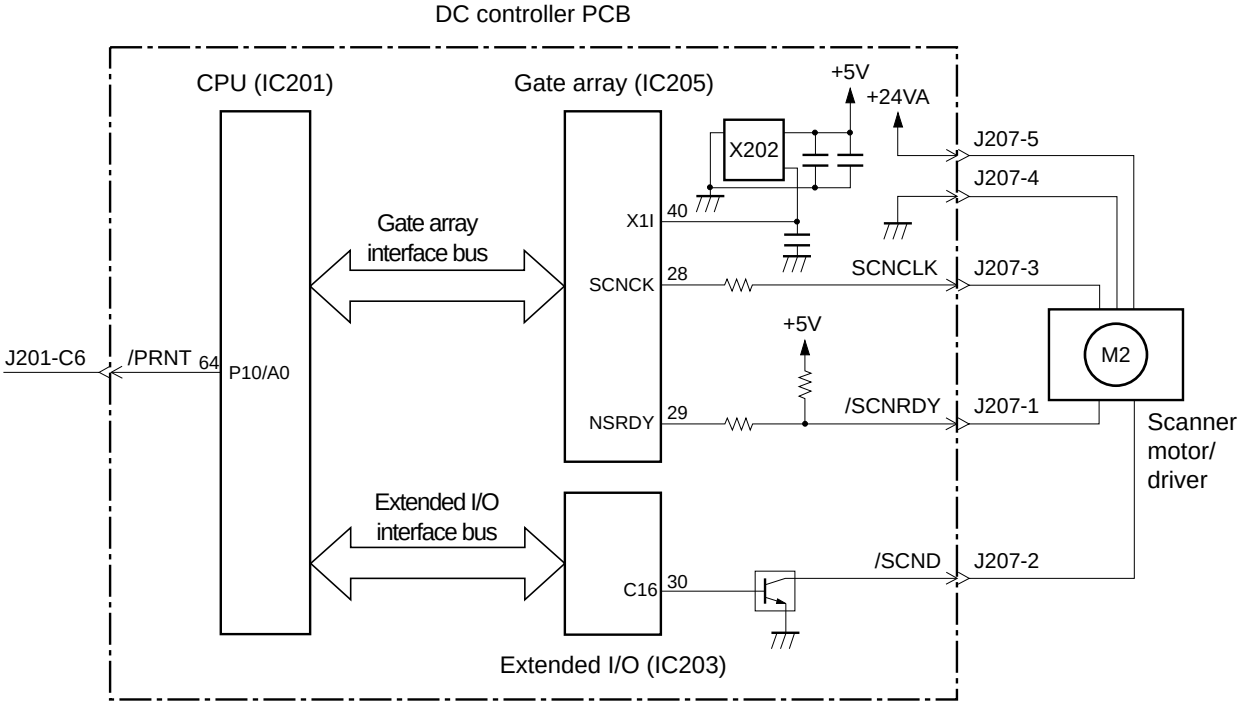

Figure 2-3-4

The scanner motor is a three-phase, eight-pole DC brushless motor with a HALL element. It forms a unit with the scanner driver, which controls the scanner motor rotation at a constant speed.

When the printer is turned ON, the oscillation frequency of the crystal oscillator (X202) is divided by the gate array (IC205), and the SCNCLK signal is sent to the scanner driver.

The /PRNT signal sent to the CPU (IC201) on the DC controller becomes “L”, the CPU sets the /SCND signal to “L” through the extended I/O (IC203). When it goes “L”, the scanner driver rotates the scanner motor using the SCNCLK signal. When the scanner motor reaches its prescribed speed, it sets the SCANNER MOTOR READY signal (/SCNRDY) signal to “L”.

The CPU on the DC controller PCB monitors the /SCNRDY signal through the gate array to make sure that the scanner motor runs at the correct speed.

The CPU notifies to the video controller of a scanner failure in the following cases:

a. When the /SCNRDY signal does not become “L” within 30 seconds from the scanner motor starting rotation.
b. When the /SCNRDY signal goes “H” for 1.5 seconds from going “L.”

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IV. IMAGE FORMATION SYSTEM

A. Outline

The image formation system is the central hub of the printer, and consists of the photosensitive drum, developing unit and charging roller etc.

When the PRINT signal (/PRNT) is sent from the video controller to the DC controller, the DC controller drives the main motor to rotate the photosensitive drum with the laser diode, developing cylinder, primary charging roller, and transfer charging roller.

The primary charging roller uniformly applies a negative charge on the surface of the photosensitive drum. To form a latent image on the photosensitive drum, the laser beam modulated by the VDO signal is exposed to the photosensitive drum surface.

The latent image formed on the photosensitive drum is changed to a visible image by the toner on the developing cylinder then transferred onto paper by the transfer charging roller. Residual toner on the photosensitive drum surface is scraped off by the cleaning blade. The potential on the drum is made uniform by the primary charging roller in preparation for the next latent image.

The cartridge has a toner sensor that detects whether there is enough toner remaining and whether the cartridge is installed.

If the toner in the cartridge becomes lower than the prescribed level or there is no cartridge installed in the printer, the high-voltage power supply notifies the DC controller through the TONER LEVEL signal.

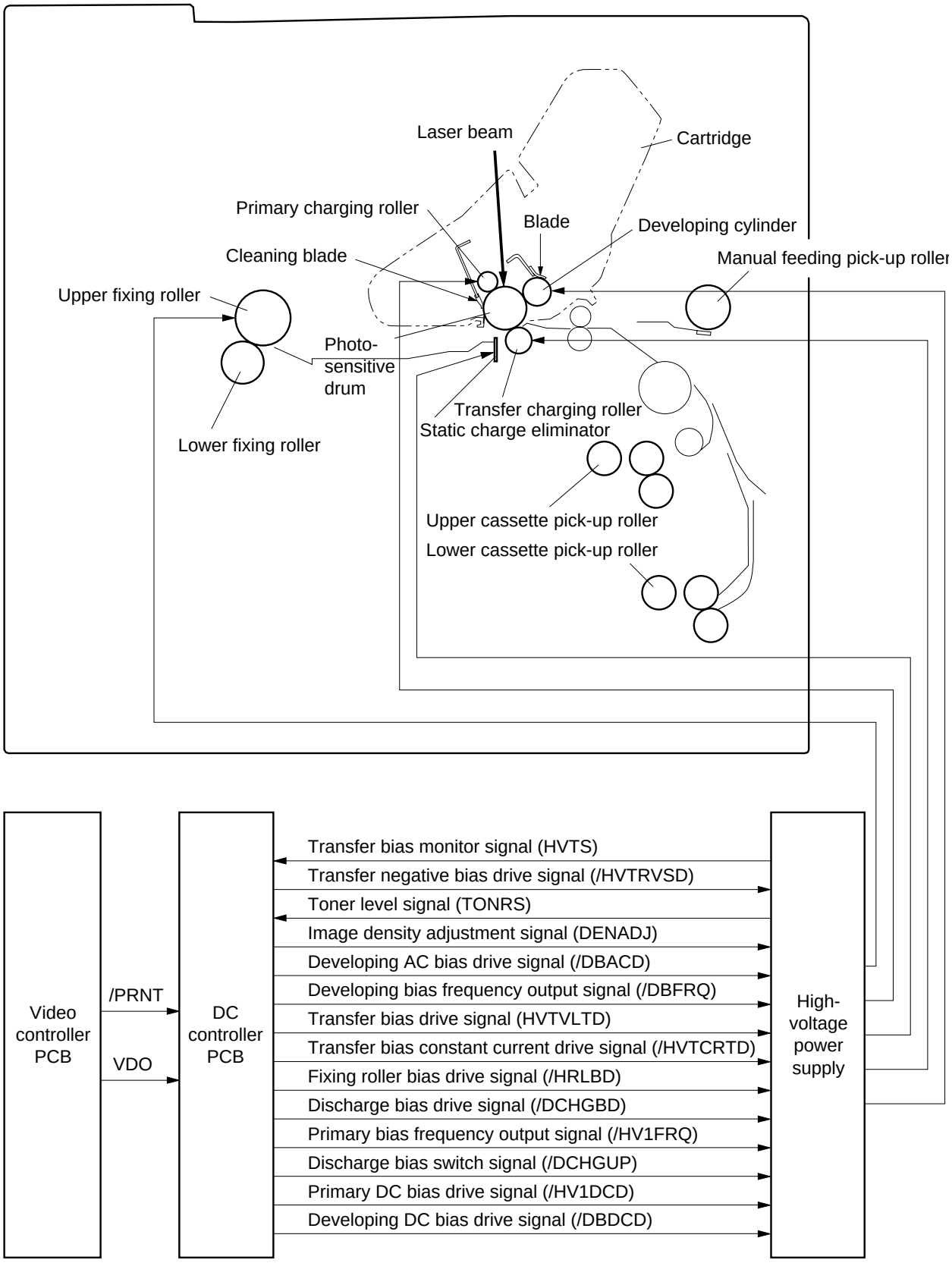

Laser beam
Cartridge
Primary charging roller
Blade
Developing cylinder
Cleaning blade
Manual feeding pick-up roller
Upper fixing roller
Photo-
sensitive
drum
Transfer charging roller
Static charge eliminator
Lower fixing roller
Upper cassette pick-up roller
Lower cassette pick-up roller
Video
controller
PCB
/PRNT
VDO
DC
controller
PCB
Transfer bias monitor signal (HVTS)
Transfer negative bias drive signal (/HVTRVSD)
Toner level signal (TONRS)
Image density adjustment signal (DENADJ)
Developing AC bias drive signal (/DBACD)
Developing bias frequency output signal (/DBFRQ)
Transfer bias drive signal (HVTVLTD)
Transfer bias constant current drive signal (/HVTCRTD)
Fixing roller bias drive signal (/HRLBD)
Discharge bias drive signal (/DCHGBD)
Primary bias frequency output signal (/HV1FRQ)
Discharge bias switch signal (/DCHGUP)
Primary DC bias drive signal (/HV1DCD)
Developing DC bias drive signal (/DBDCD)
High-
voltage
power
supply

Figure 2-4-1

B. Printing Process

A major portion of the image formation system is contained with a cartridge as shown in Figure 2-4-2.

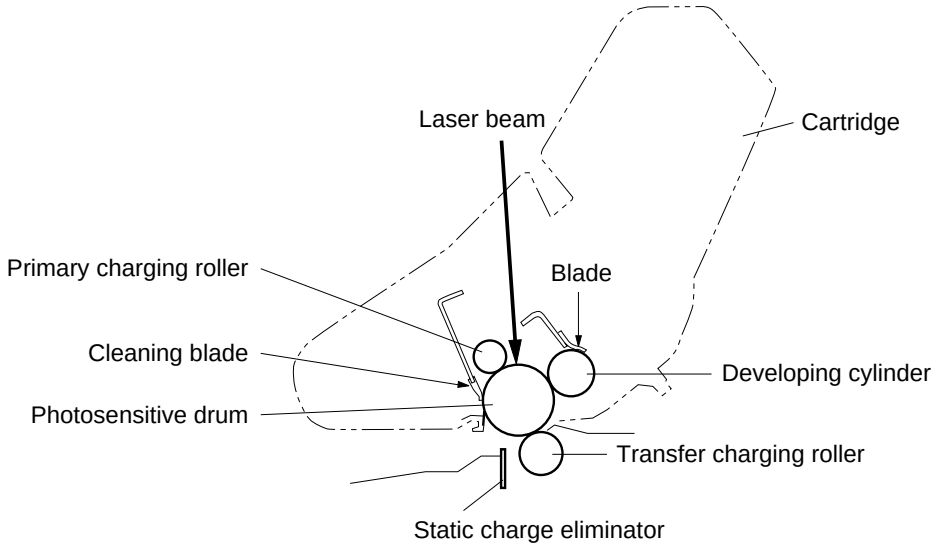


Figure 2-4-2

This printer's cartridge has a seamless photosensitive drum with a two-layer surface shown in Figure 2-4-3.

The outer layer of the drum consists of an organic photoconductor (OPC) and the base is aluminum.

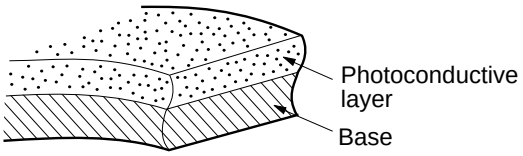


Figure 2-4-3

The printing process can be divided into five major stages.

1. Electrostatic latent image formation stage

Step 1 Primary charge (-)
Step 2 Scanning exposure

2. Developing stage

Step 3 Development

3. Transfer stage

Step 4 Transfer (+)
Step 5 Separation

4. Fixing stage

Step 6 Fixing

5. Drum cleaning stage

Step 7 Drum cleaning

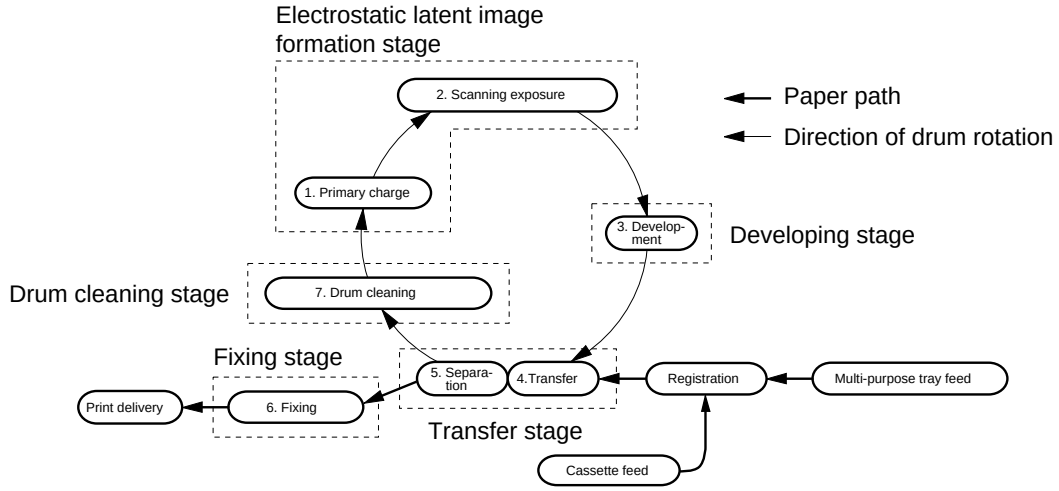


Figure 2-4-4

1. Electrostatic latent image formation stage

This stage follows two steps to produce an electrostatic latent image on the photosensitive drum.

At the end of the stage, negative charges remain on the unexposed "dark" areas, where the laser beam struck (exposed) the drum surface.

This image of negative charges on the drum is invisible to the eye, so it is referred to as an called an "electrostatic latent image."

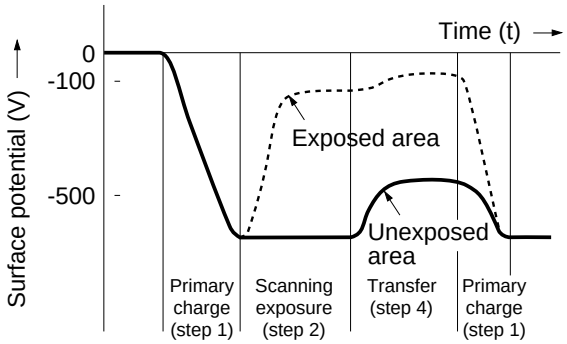


Figure 2-4-5

Step 1 Primary charge

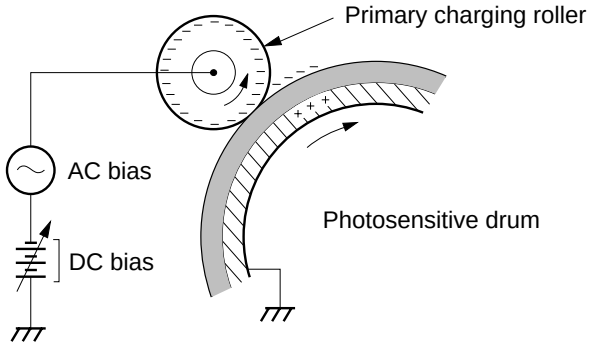


Figure 2-4-6

For preparation of the latent image formation, a uniform negative potential is applied to the photosensitive drum surface. For primary charge, the printer uses the charging method, which directly charges the drum.

The primary charging roller is made of conductive rubber. In addition to DC bias, AC bias has been applied to the primary charging roller to keep the potential on the drum's surface uniform. The DC bias is changed with the developing DC bias.

Step 2 Scanning exposure

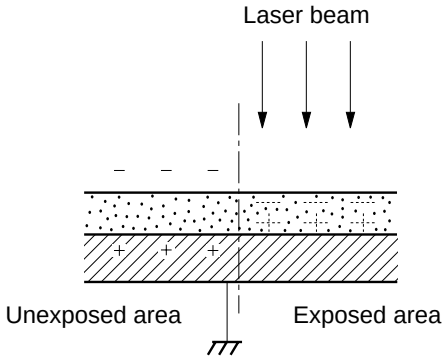


Figure 2-4-7

When the laser beam scans the drum surface, it causes the charge to be neutralized in the areas struck by the laser beam. These areas on the drum surface form the electrostatic latent image.

2. Development stage

Particles of toner are placed onto the electrostatic latent image on the surface of the drum to create a visible image. This printer uses the toner projection development method with a single-component toner.

Step 3 Development

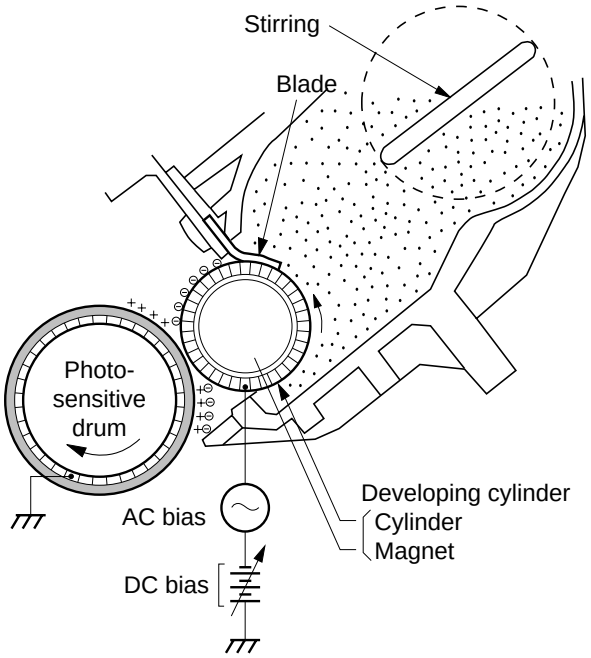


Figure 2-4-8

Note: Charges on the exposed area of the photosensitive drum are shown as positive in this figure. In actuality they are negative, but they are more positive than those on the developing cylinder.

As shown in Figure 2-4-8, the developing unit consists of a developing cylinder and a rubber blade. The developing cylinder rotates around a fixed internal magnet.

The single-component toner consists of magnetite and a resin binder, and is held to the cylinder by magnetic attraction. The toner is an insulator, and acquires a negative charge from friction of the rotating cylinder.

The areas on the drum that were exposed to the laser beam have a higher potential (are less negative) than the negatively charged toner particles on the developing cylinder. When these areas approach the cylinder, the potential difference projects the toner particles to them.

This is called toner projection, making the latent image on the drum visible.

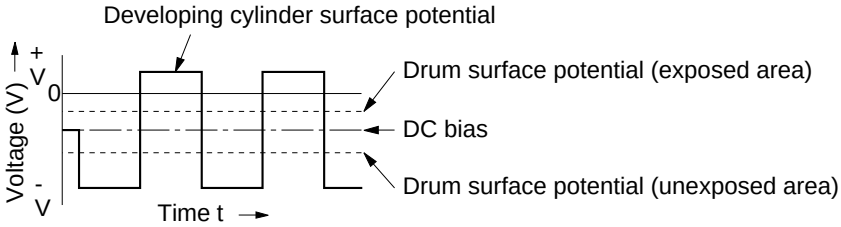


Figure 2-4-9

An AC bias is applied to the developing cylinder to help project the toner particles to the drum surface and improve the contrast of the printed image. The center voltage of the AC bias (1600 Vp-p) varies with the DC bias voltage. The change in the DC bias changes the potential difference between the cylinder and drum so the density of the print can be adjusted. It can be done through a command from an external device.

This printer has a stirring mechanism in the cartridge to ensure that toner is applied smoothly to the cylinder.

3. Transfer stage

In the transfer stage, the toner image is transferred from the drum surface to the paper.

Step 4 Transfer

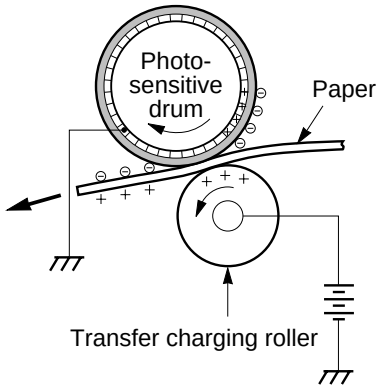


Figure 2-4-10

A positive charge applied to the back of the paper attracts the negatively charged toner particles to the paper.

Reference:
If the image on the photosensitive drum is not completely transferred onto the paper due to jamming, etc., the toner may adhere to the transfer charging roller. The printer removes the toner from the transfer charging roller by switching the transfer voltage between positive and negative in the specified sequence. During wait mode, initial rotation, and last rotation, the printer sets the primary DC voltage to 0V to make the charge on the drum 0V. At the same time, the transfer voltage is set to negative to remove the toner with a negative charge from the transfer charging roller to the drum. The transfer charging roller is cleaned by removing the toner on its surface to the drum.

Step 5 Separation

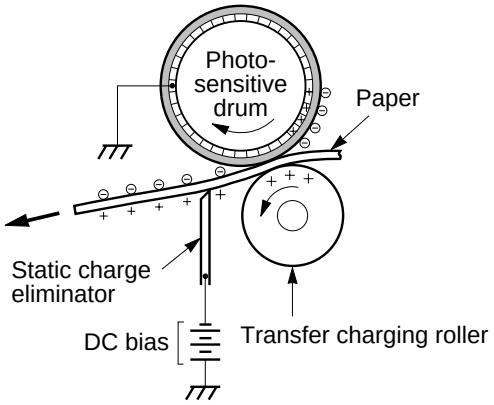


Figure 2-4-11

The stiffness of the paper causes it to separate from the drum. Thin paper or curled sheets to be duplex printed may not separate, but remain wrapped around the drum. To prevent this, a negative bias is applied to the static charge eliminator to reduce electrostatic adhesion between the drum and paper and facilitate separation.

To stabilize the paper feed system and prevent droplets on the printed image at low temperature and humidity, the charge on the back of the paper is reduced by the static charge eliminator after transfer.

4. Fixing stage

The toner image transferred onto the paper in the transfer stage is held only by electrostatic attraction and a slight physical adhesion, so even a light touch will smear the image.

In the fixing stage, the toner image is fixed by heating the paper and applying pressure. This fuses the toner particles onto the paper to create a permanent image.

Step 6 Fixing

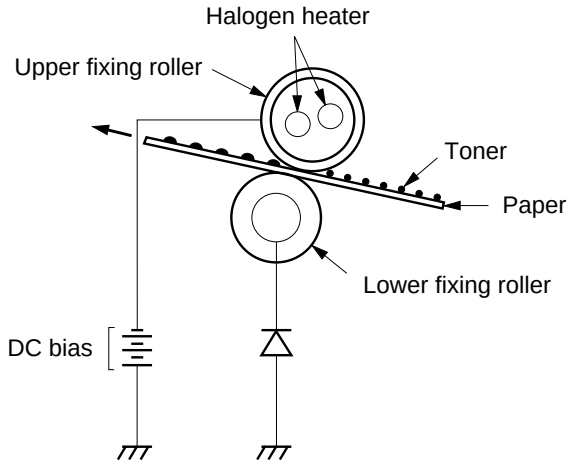


Figure 2-4-12

The upper and lower fixing roller surfaces are covered with teflon tubes with a very low adhesive property.

The negative DC bias is applied to the upper fixing roller to prevent the toner from adhering to the rollers.

5. Drum cleaning stage

In the transfer stage, not all the toner is transferred to the paper. Some remains on the photosensitive drum.

This residual toner is cleaned off in the drum cleaning stage so that the next print image will be clear and distinct.

Step 7 Drum cleaning

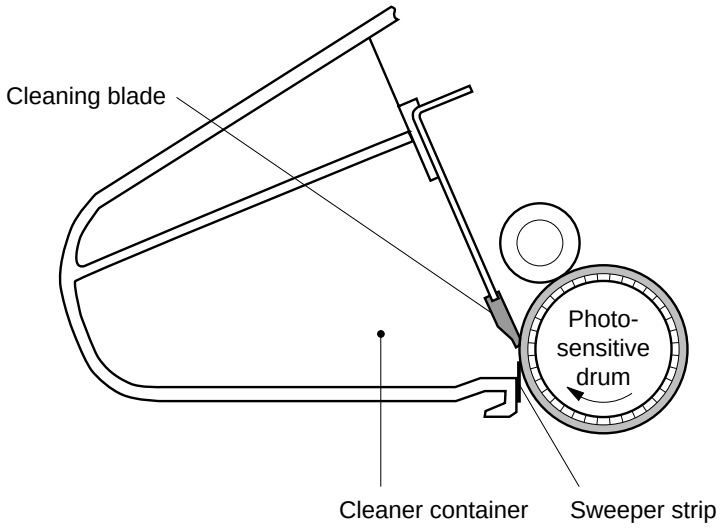


Figure 2-4-13

The residual toner on the drum surface is scraped away with the cleaning blade to clean the drum surface in preparation for the next print. The removed toner is collected in the cleaner container.

V. PICK-UP/FEED SYSTEM

A. Outline

Presence of paper on the multi-purpose tray is detected by the multi-purpose tray paper sensor (PS1301), and presence of paper in the upper and lower cassettes is detected by the cassette paper-out sensor (PS1207 or PS1208).

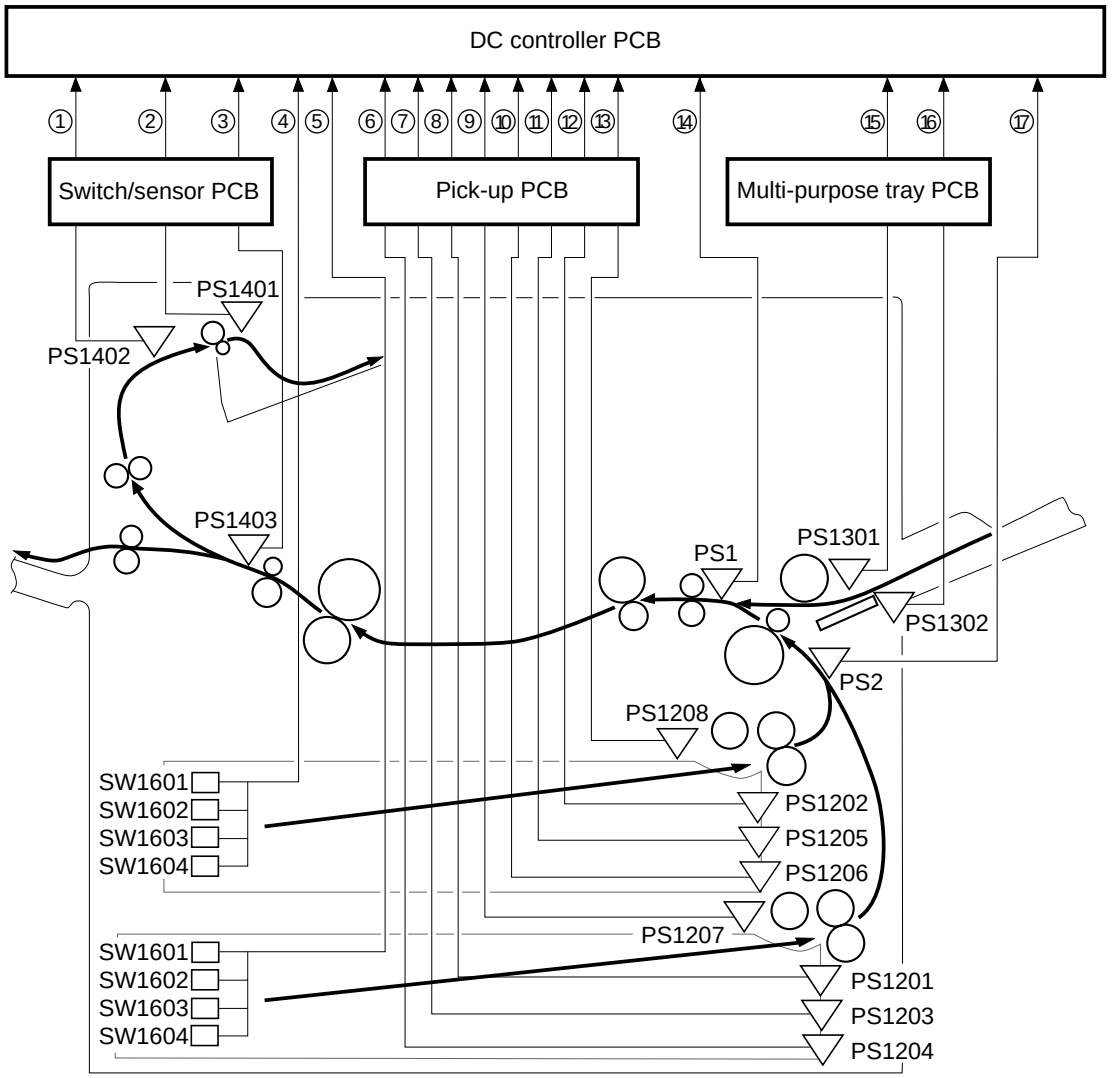
If the cassette pick-up motor (SMT1) in the paper pick-up unit rotates for cassette feeding, pick-up roller, feed roller 1, and separation roller turn to feed a sheet of paper into the printer.

If the manual feed clutch (CL3) in the manual feed pick-up unit engages for manual feeding, the manual feeding pick-up roller turns and feeds a sheet of paper from the multi-purpose tray into the printer.

The paper is controlled by the registration roller so that the leading edge of the toner image on the photosensitive drum matches the leading edge of the paper. The paper is fed, transferred, then separated from the drum, fed to the fixing unit, and delivered onto the face-up or face-down tray.

There are four photointerrupters (PS1, PS2, PS1402, and PS1403) on the paper path for sensing paper reaching or passing through each area.

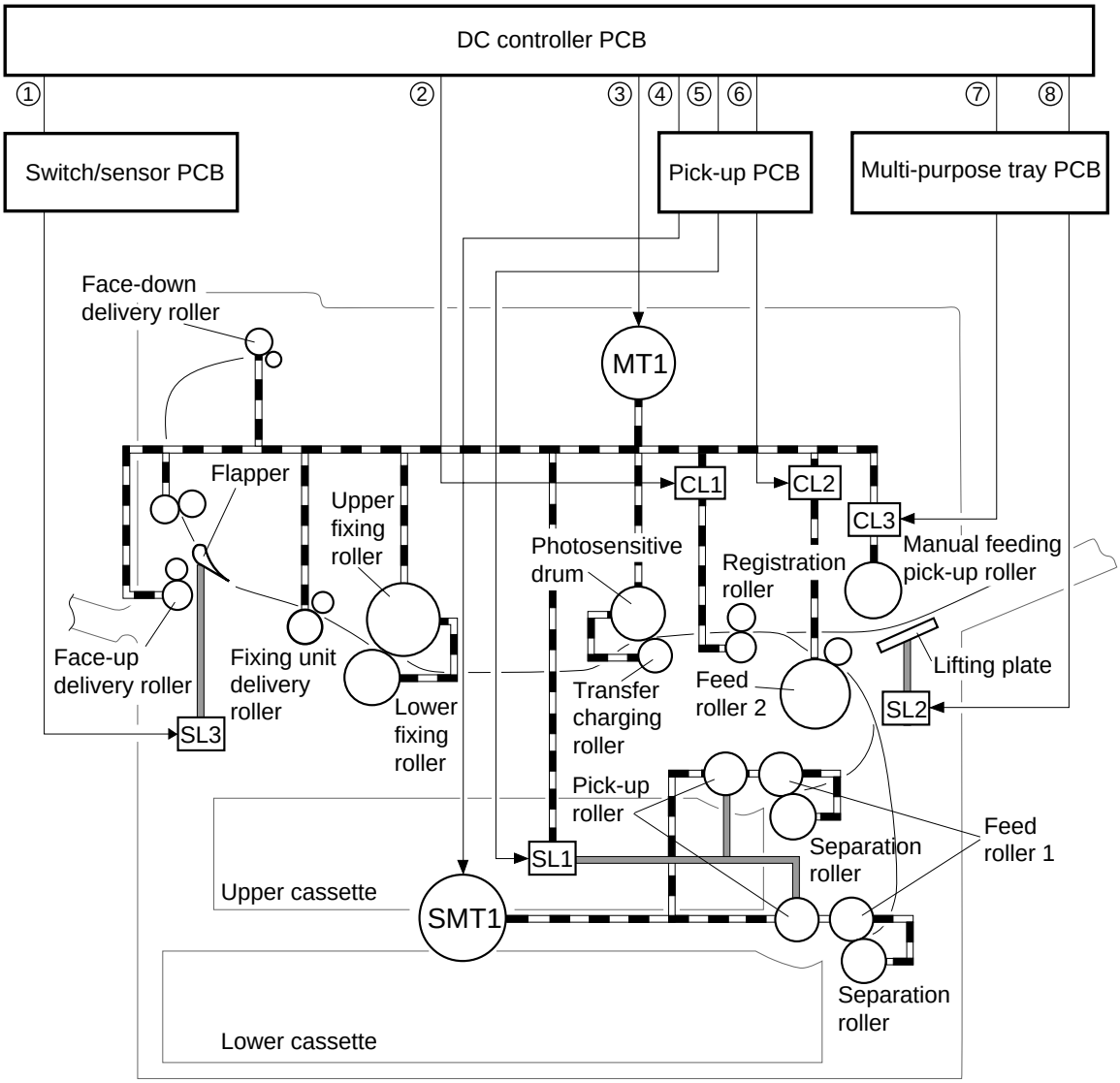
If the paper does not reach or clear each sensor within the pre-set time, the microprocessor on the DC controller assumes a paper jam has occurred and notifies the video controller.



①: FACE-DOWN TRAY DELIVERY SENSE signal (FDOUTS)
②: FACE-DOWN TRAY PAPER FULL SENSE signal (FDFULS)
③: FIXING UNIT DELIVERY SENSE signal (/FPOUTS)
④: UPPER CASSETTE PAPER-SIZE SENSE signal
⑤: LOWER CASSETTE PAPER-SIZE SENSE signal
⑥: LOWER CASSETTE PAPER-LEVEL SENSE signal 1 (LPVS1)
⑦: LOWER CASSETTE PAPER-LEVEL SENSE signal 2 (LPVS2)
⑧: LOWER CASSETTE SENSE signal (/LDECKC)
⑨: LOWER CASSETTE PAPER-OUT SENSE signal (/LDECKS)
⑩: UPPER CASSETTE PAPER-LEVEL SENSE signal 1 (UPVS1)
⑪: UPPER CASSETTE PAPER-LEVEL SENSE signal 2 (UPVS2)
⑫: UPPER CASSETTE SENSE signal (/UDECKC)
⑬: UPPER CASSETTE PAPER-OUT SENSE signal (/UDECKS)
⑭: REGISTRATION PAPER SENSE signal (/REGS)
⑮: MULTI-PURPOSE TRAY PAPER SENSE signal (/MPTPS)
⑯: LIFTING PLATE SENSE signal (/MPTLS)
⑰: PICK-UP UNIT PAPER SENSE signal (/FEEDS)

PS1: Registration paper sensor
PS2: Pick-up unit paper sensor
PS1201: Lower cassette sensor
PS1202: Upper cassette sensor
PS1203: Lower cassette paper-level sensor 1
PS1204: Lower cassette paper-level sensor 2
PS1205: Upper cassette paper-level sensor 1
PS1206: Upper cassette paper-level sensor 2
PS1207: Lower cassette paper-out sensor
PS1208: Upper cassette paper-out sensor
PS1301: Multi-purpose tray paper sensor
PS1302: Lifting plate position sensor
PS1401: Face-down tray paper full sensor
PS1402: Face-down tray delivery sensor
PS1403: Fixing unit delivery sensor
SW1601: Cassette paper-size sensing switch
SW1602: Cassette paper-size sensing switch
SW1603: Cassette paper-size sensing switch
SW1604: Cassette paper-size sensing switch

Figure 2-5-1



①: FACE-UP SOLENOID DRIVE signal (/FUSLD)
②: REGISTRATION CLUTCH DRIVE signal (/REGCLD)
③: MAIN MOTOR DRIVE signal (MMRDY)
④: PICK-UP MOTOR DRIVE signal
⑤: FEED CLUTCH DRIVE signal (/FEEDCLD)
⑥: CASSETTE PICK-UP SOLENOID DRIVE signal (/PUPSLD)
⑦: MANUAL FEED CLUTCH DRIVE signal (/MPTCLD)
⑧: LIFTING PLATE SOLENOID DRIVE signal (/MPTSLD)

MT1: Main motor
SMT1: Cassette pick-up motor
SL1: Cassette pick-up solenoid
SL2: Lifting plate solenoid
SL3: Face-up solenoid
CL1: Registration clutch
CL2: Feed clutch
CL3: Manual feed clutch

Figure 2-5-2

B. Paper Pick-up Unit

1. Cassette feed

Presence of the upper and lower cassettes is detected by the upper cassette sensor (PS1202) and lower cassette sensor (PS1201). The presence of paper is detected by the upper cassette paper-out sensor (PS1207) and lower cassette paper-out sensor (PS1208). The paper size is detected by the four upper and lower cassette paper-size sensing switches (SW1601 to SW1604) installed in the upper and lower cassettes. Table 2-5-1 lists combinations of cassette paper-size sensing switches.

The paper level in the upper cassette is detected by combinations of outputs from the upper cassette paper-level sensor 1 (PS1205) and upper cassette paper-level sensor 2 (PS1206). The paper level in the lower cassette is detected by combinations of outputs from the lower cassette paper-level sensor 1 (PS1203) and lower cassette paper-level sensor 2 (PS1204). Figure 2-5-3 shows combinations of PS1205, PS1203, PS1206, and PS1204.

When the video controller inputs the /PRNT signal into the printer, the cassette pick-up motor (SMT1) starts operation. The cassette pick-up motor is a stepping motor, when rotating clockwise, it drives the cassette pick-up roller, feed roller 1, and separation roller on the upper cassette to enable printer to feed paper from the upper cassette. When it rotates counter clockwise, it drives the cassette pick-up roller, feed roller 1, and separation roller on the lower cassette to enable the printer to feed paper from the lower cassette.

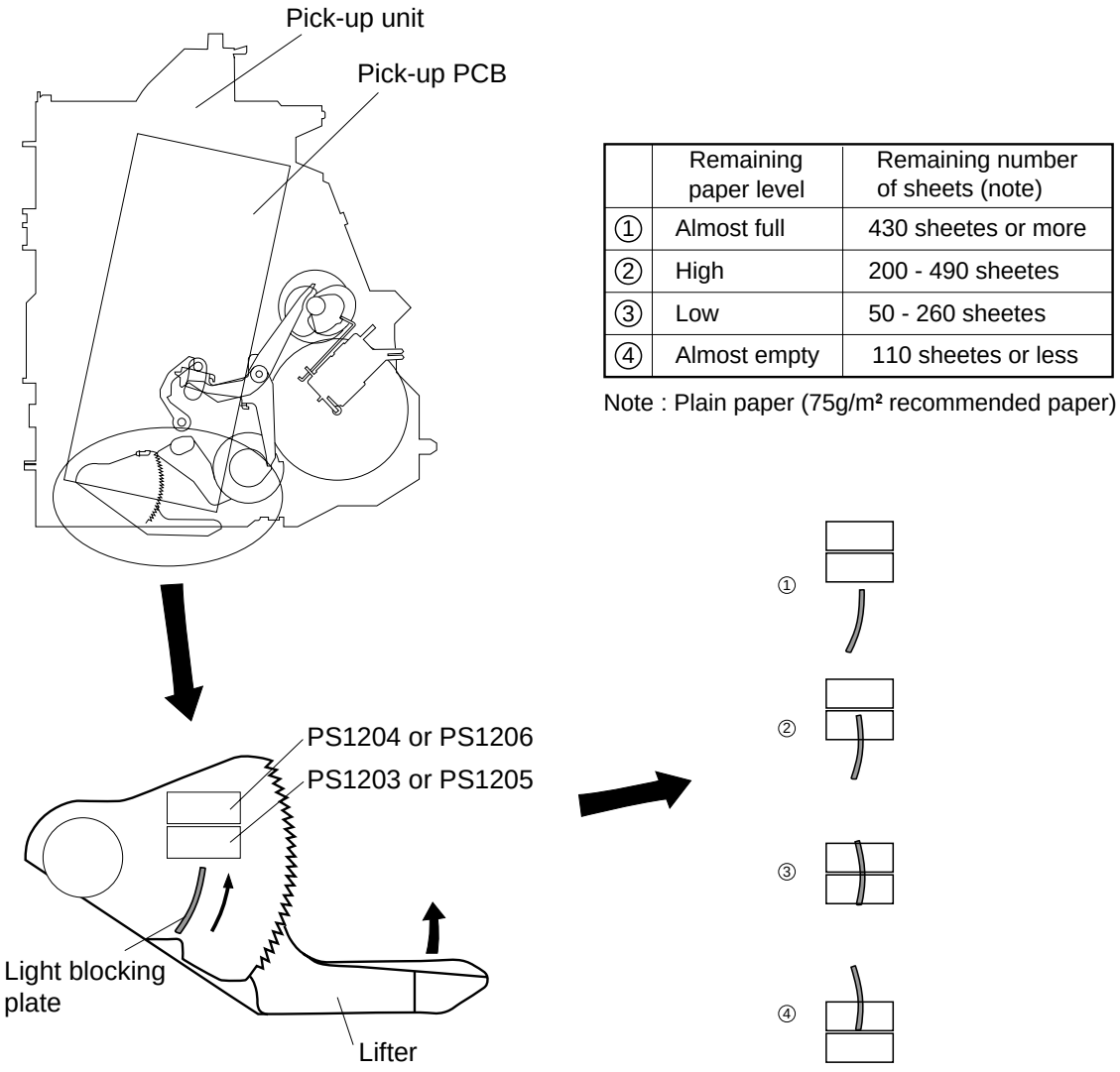
Following this, the cassette pick-up solenoid (SL1) turns on, the main motor then drives the cassette pick-up roller lowering cam to lower the cassette pick-up roller to the paper surface. Paper is fed by the rotating cassette pick-up roller.

The paper picked up by the cassette pick-up roller is fed into the printer by feed rollers 1 and 2. If more than one sheet is picked up, unnecessary sheets are discharged by the separation roller.

The paper passes through the pick-up unit paper sensor (PS2), the registration paper sensor (PS1) and then reaches the registration roller. The registration roller does not rotate, so the paper is stopped. The leading edge of the paper is looped to correct any skew. When the VERTICAL SYNC signal (/VSYNC) is received, the registration clutch (CL1) turns on and the paper is fed again.

Table 2-5-1

Paper size	Cassette paper-size sensing switch			
	SW1601	SW1602	SW1603	SW1604
Ledger	OFF	OFF	OFF	OFF
A3	OFF	ON	OFF	OFF
B4	ON	OFF	OFF	OFF
Legal	ON	ON	OFF	OFF
Letter	OFF	OFF	OFF	ON
A4	OFF	OFF	ON	OFF



	Remaining paper level	Remaining number of sheets (note)
①	Almost full	430 sheetes or more
②	High	200 - 490 sheetes
③	Low	50 - 260 sheetes
④	Almost empty	110 sheetes or less

Note : Plain paper (75g/m² recommended paper)

Figure 2-5-3

• Pick-up timing from the upper cassette (A4 : tow pages continuously print)

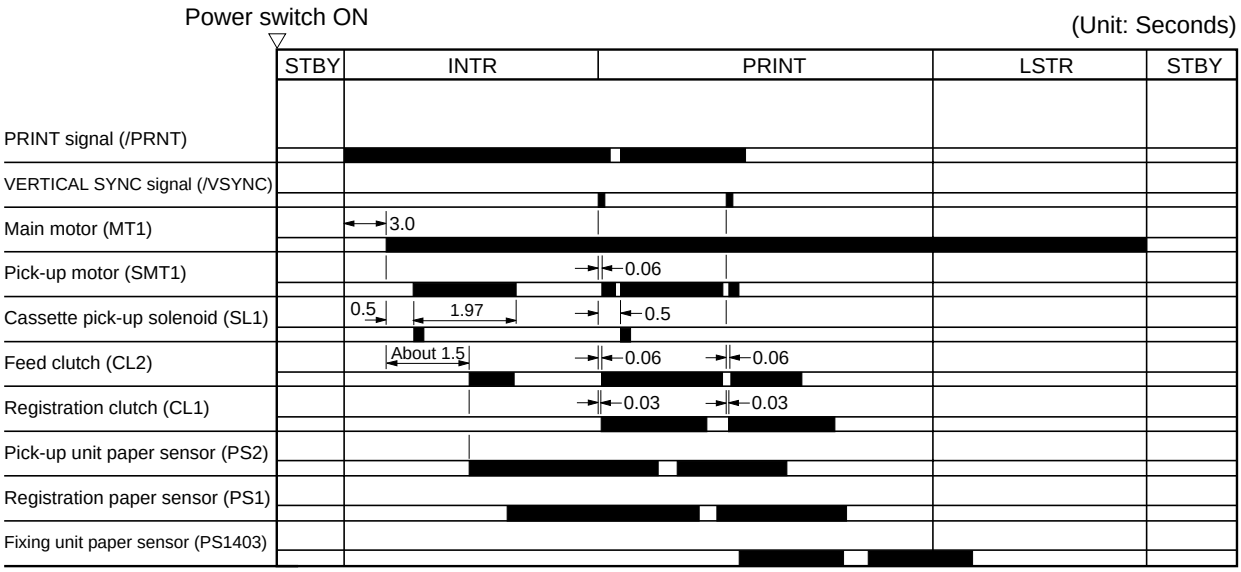


Figure 2-5-4

• Pick-up timing from the lower cassette (A4 : tow pages continuously print)

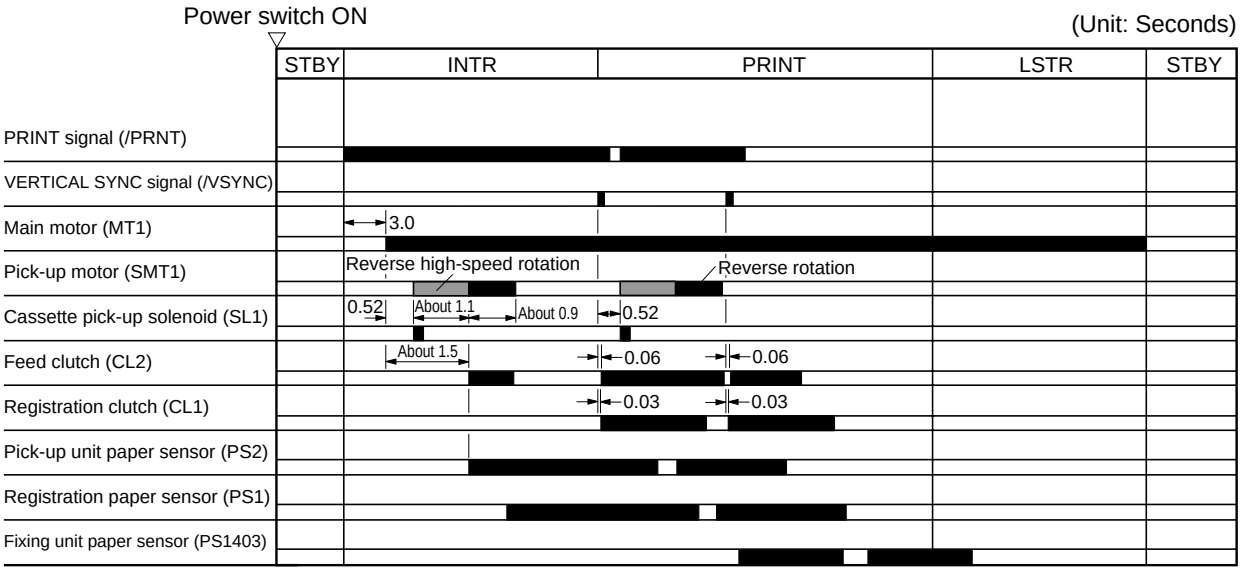


Figure 2-5-5

a. Pick-up mechanism

The printer raises the lifter and lowers the cassette pick-up roller to the paper surface enabling it to pick up paper.

When either the upper or lower cassette is installed in the printer, the upper or lower lifter gear is engaged into drive gear, so that the lifter can be raised. The cassette pick-up roller shaft is unlocked so the pick-up roller can be lowered.

When the cassette feed solenoid (SL1) turns on, the main motor (MT1) drives the upper or lower lifter to raise the paper in the cassette. The MT1 power is transmitted to the cassette pick-up roller lowering cam in order to lower the cassette pick-up roller to the paper surface so that one sheet can be fed.

The lifter is not raised until the surface of the paper in the cassette drops to a certain level. When the paper surface reaches that certain level, the pick-up roller shaft moves down to release the cam and raise the lifter again.

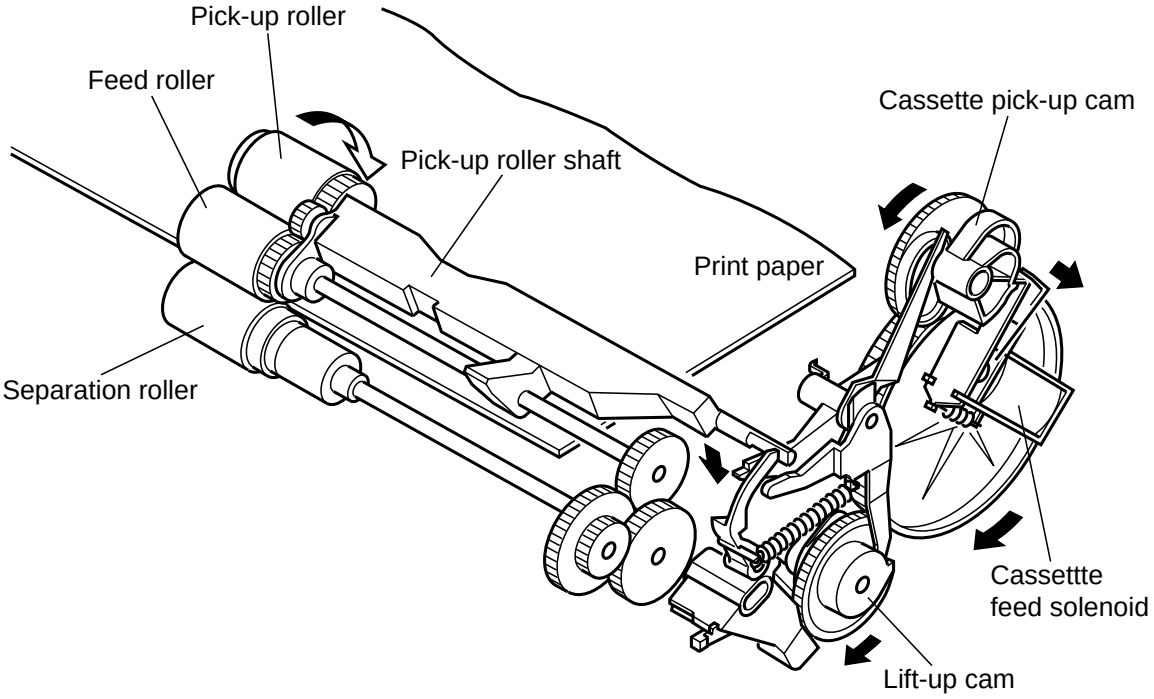


Figure 2-5-6

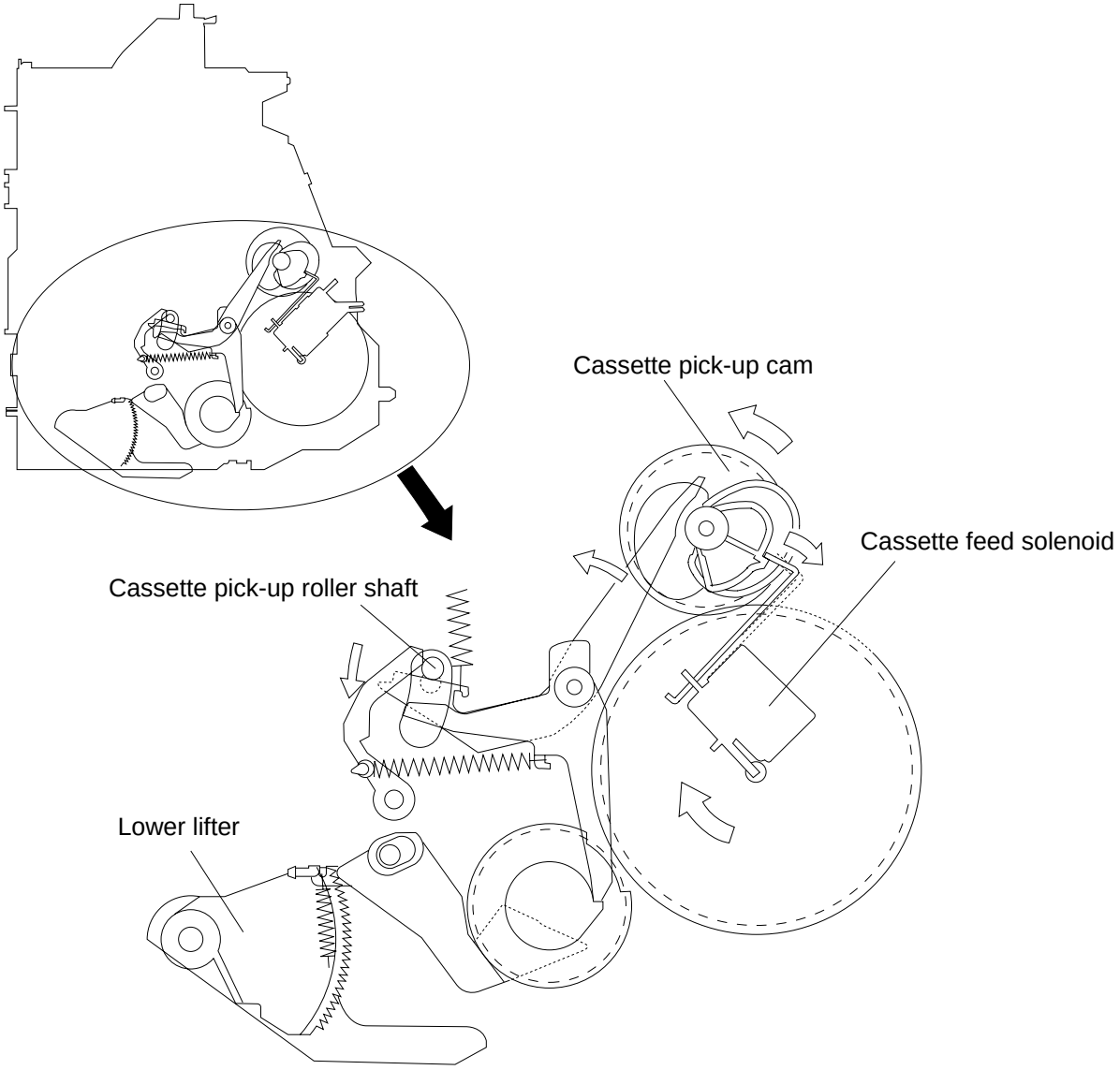

Cassette pick-up cam
Cassette feed solenoid
Cassette pick-up roller shaft
Lower lifter

Figure 2-5-7

b. Multi-feed prevention mechanism

When feeding from the cassette, the printer uses the separation roller to prevent multi-feeding. Normally, the separation roller is imparted with a rotational force opposite to that of the feed roller. However, since the separation roller is equipped with a torque limiter, it rotates with feed roller 1 by transmission of its rotational force via the transported paper. On the other hand, if multiple sheets of paper are picked up, the low friction force between the sheets of paper result in a weak rotational force being transmitted to the separation roller from feed roller 1. Consequently, the separation roller's own rotational force separates the extra sheet.

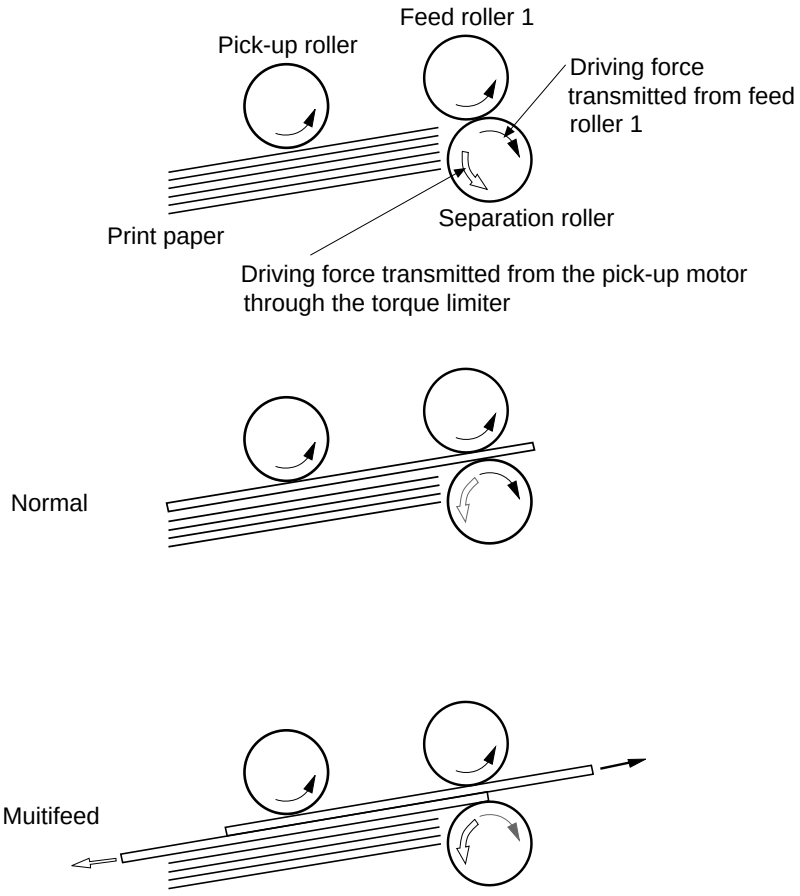


Figure 2-5-8

2. Manual feed (multi-purpose tray)

The presence of paper on the multi-purpose tray is detected by the multi-purpose tray paper sensor (PS1301).

When the DC controller receives the /PRNT signal from the video controller, the lifting plate solenoid (SL2) turns on, the lifting plate is unlocked (the lifting plate rises), and the paper touches the pick-up roller.

The lifting plate position is detected by the lifting plate position sensor (PS1302). If the sensor detects that the lifting plate is up while waiting, SL2 is turned on to lower the lifting plate.

The manual feed clutch (CL3) turns on, and the main motor (MT1) power is transmitted to the manual feeding pick-up roller.

Paper pressed against the manual feeding pick-up roller by the lifting plate is picked up by the pick-up roller. Unnecessary sheets are removed by the separation pad, and one sheet is fed into the printer by feed roller 2. The subsequent operations are almost the same as for those of cassette feeding, except that SL2 is turned on again straight after the rotation of the registration roller to lower the lifting plate.

When SL2 is turned on to lower the lifting plate, but PS1302 does not go “L” after about 1.5 seconds, or if SL2 is turned on to raise the lifting plate, but PS1302 does not go “H” after about 1.0 seconds, a lifting plate failure is reported to the video controller.

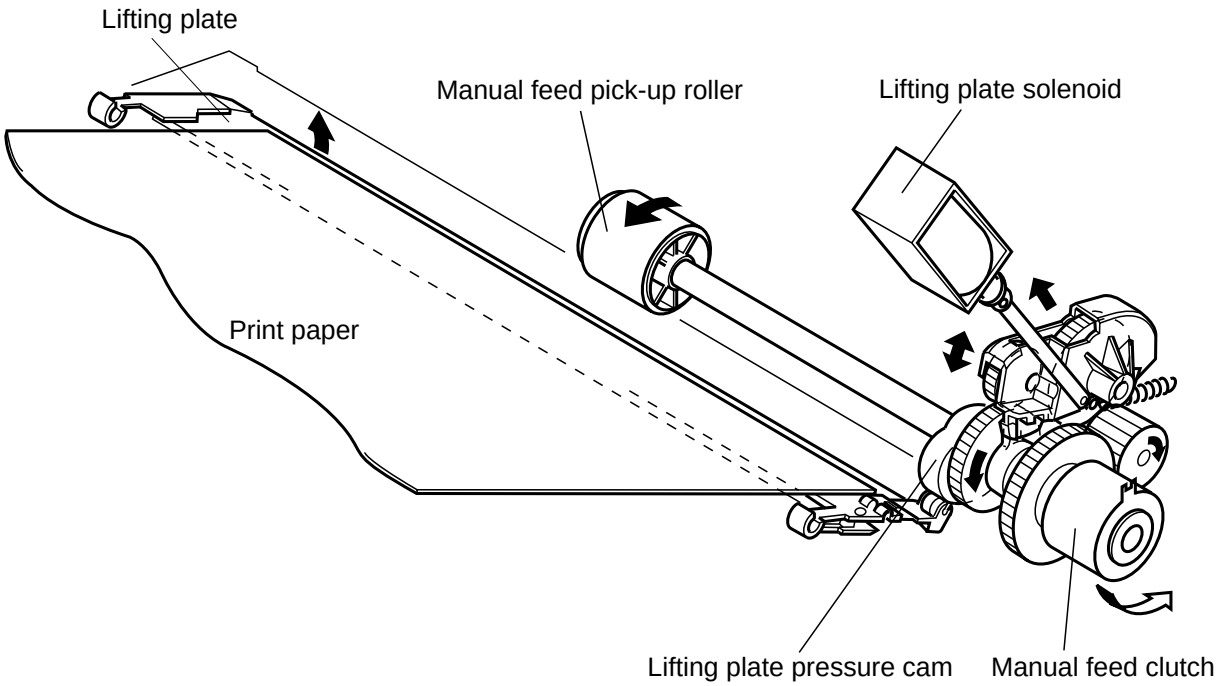


Figure 2-5-9

• Pick-up timing from the munual feed (A4 : tow pages continuously print)

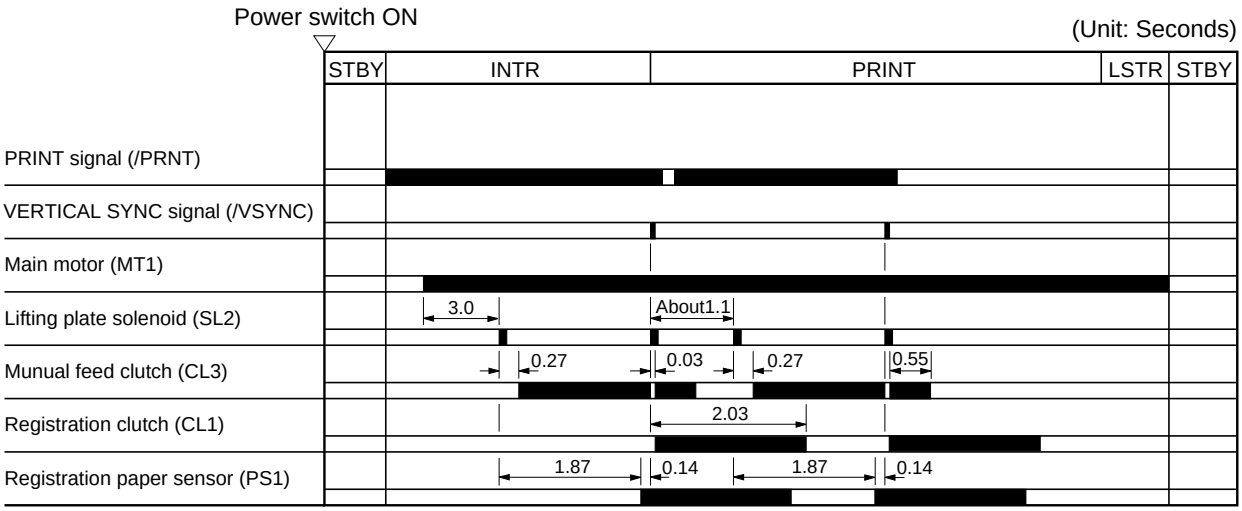
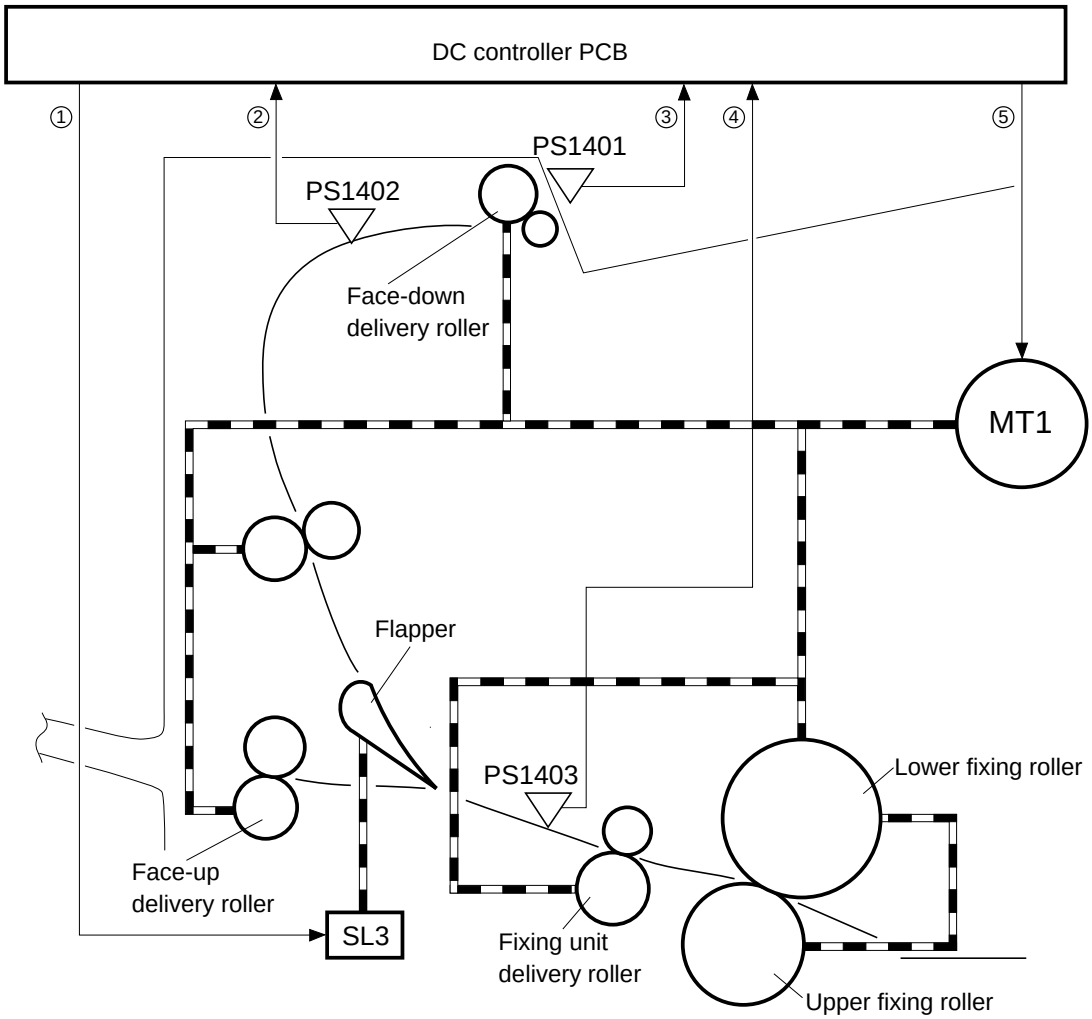


Figure 2-5-10

C. Fixing and Delivery Unit

The upper and lower rollers of the fixing unit, and the face-up and face-down delivery rollers are driven by the main motor (MT1).

The paper separated from the photosensitive drum is fed into the fixing unit, and sent from the fixing unit by the fixing roller and fixing unit delivery roller.



①: FACE-UP SOLENOID DRIVE signal (/FUSLD)
②: FACE-DOWN TRAY DELIVERY SENSE signal (FDOUTS)
③: FACE-DOWN TRAY PAPER FULL SENSE signal (FDFULS)
④: FIXING UNIT DELIVERY SENSE signal (/FPOUTS)
⑤: MAIN MOTOR DRIVE signal (/MMOTD)

PS1401: Face-down tray paper full sensor
PS1402: Face-down tray delivery sensor
PS1403: Fixing unit delivery sensor
SL3: Face-up solenoid
MT1: Main motor

The paper sent from the fixing unit is detected by the fixing unit delivery sensor (PS1403).

Figure 2-5-11

The printer switches between face-up and face-down tray delivery with the face-up deflector. When the FACE-UP SOLENOID DRIVE signal (/FUSLD) becomes “L”, the face-up solenoid (SL3) moves the face-up deflector to the face-up tray and the paper is delivered through the face-up tray. If /FUSLD is “H”, the paper is delivered through the face-down tray on the top of the printer.

The paper delivered through the face-down tray is detected by the face-down tray delivery sensor (PS1402). When the face-down tray becomes full, this is detected by the face-down tray paper full sensor (PS1401).

D. Paper Jam Detection

The following paper sensors are provided to detect whether paper is present and whether the paper is fed normally.

- Registration paper sensor (PS1)
- Pick-up unit paper sensor (PS2)
- Fixing unit delivery sensor (PS1403)
- Face-down tray delivery sensor (PS1402)

The microprocessor (CPU) determines whether paper is jammed by checking whether paper is present or absent at the sensors, at times stored in memory.

If the CPU determines that a jam has occurred, it stops print operation and notifies the jam to the video controller.

Note: T1, T2, and T3 times indicate the minimum and maximum sizes of paper.

---

1. Cassette pick-up delay jam

The CPU detects a cassette pick-up delay jam has occurred if the paper does not reach the pick-up unit paper sensor (PS2) within the prescribed time after the paper has been picked up.

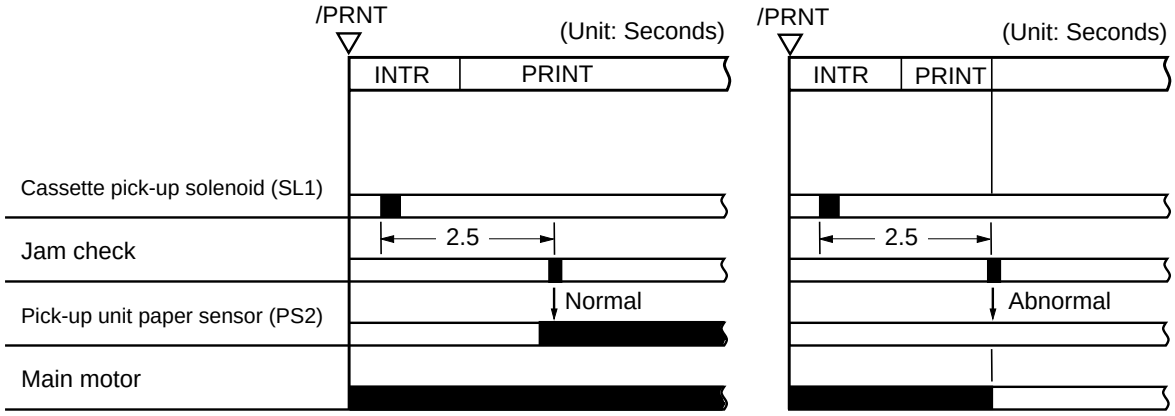


Figure 2-5-12

2. Pick-up unit delay jam

The CPU detects a pick-up unit delay jam has occurred if the paper has not reached the registration paper sensor (PS1) within the prescribed time after the paper has been picked up.

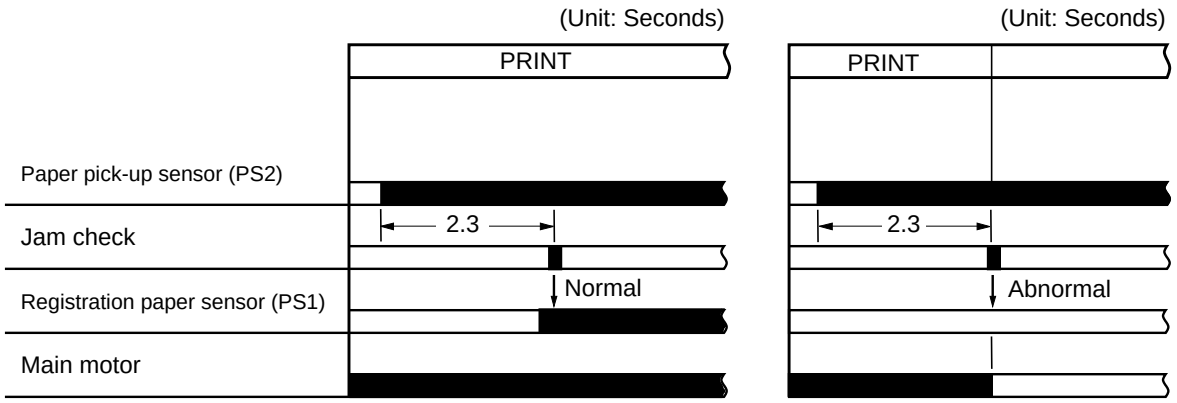


Figure 2-5-13

3. Fixing unit delivery delay jam

The CPU detects a face-down delivery delay jam has occurred if the paper has not reached the fixing unit delivery sensor (PS1403) within the prescribed time after the VERTICAL SYNC signal (/VSYNC) has been received.

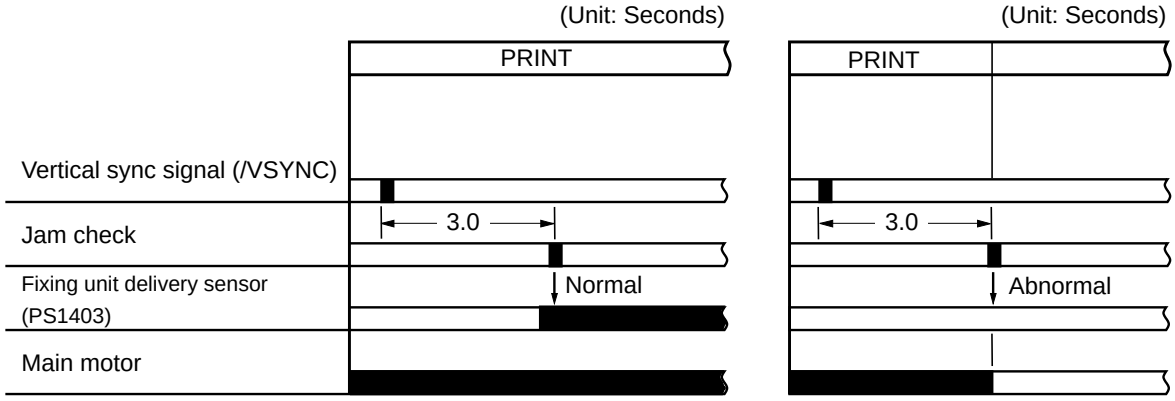
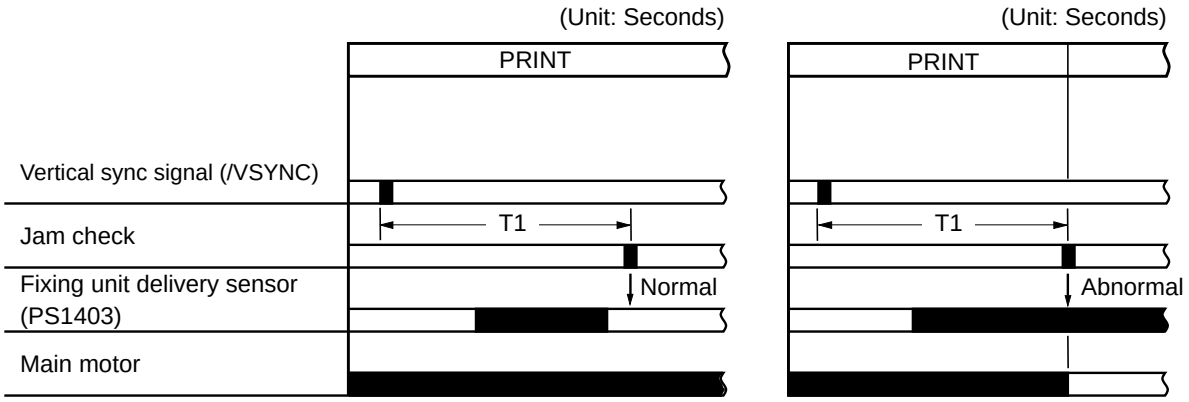


Figure 2-5-14

4. Fixing unit delivery stationary jam

The CPU detects a pick-up unit stationary jam has occurred if the paper has not passed through the fixing unit delivery sensor (PS1403) within the prescribed time after the VERTICAL SYNC signal (/VSYNC) has been received.



T1 : 5.0 seconds (A4), 7.1 seconds (Ledger)

Figure 2-5-15

5. Face-down delivery delay jam

The CPU detects a face-down delivery delay jam has occurred if the paper has not reached the face-down tray delivery sensor (PS1402) within the prescribed time after the VERTICAL SYNC signal (/VSYNC) has been received.

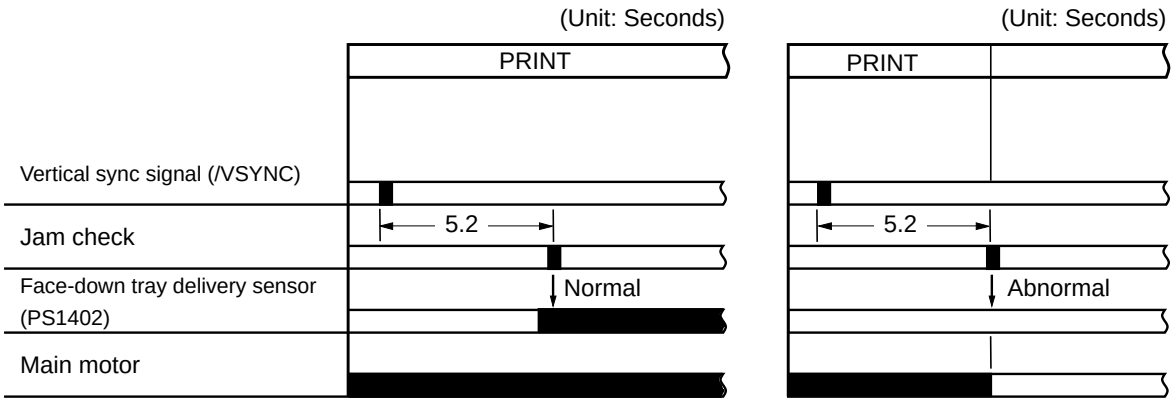
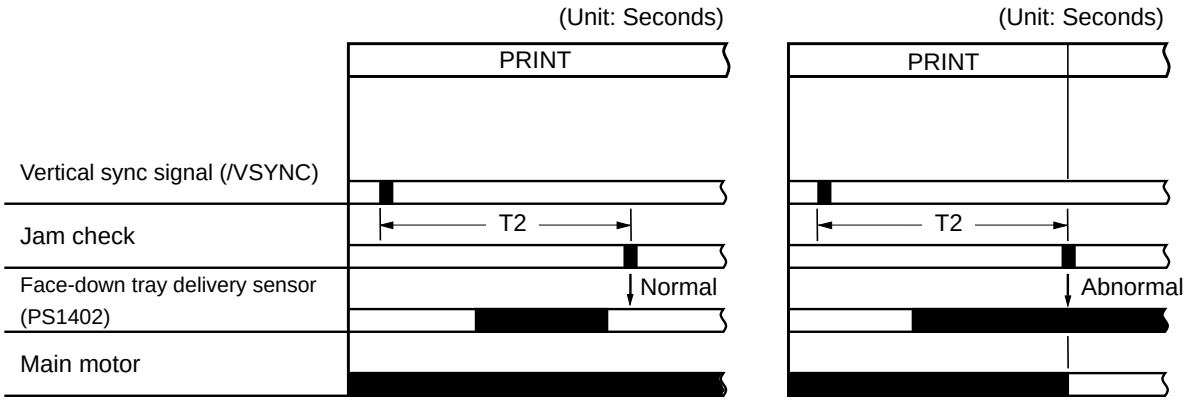


Figure 2-5-16

6. Face-down delivery stationary jam

The CPU detects a face-down delivery stationary jam has occurred if the paper has not passed through the face-down tray delivery sensor (PS1402) within the prescribed time after the VERTICAL SYNC signal (/VSYNC) has been received.



T2 : 7.3 seconds (A4), 9.4 seconds (Ledger)

Figure 2-5-17

7. Initial residual jam

a. Turn the power ON, in the event that the fixing delivery paper sensor (PS1403) detects the presence of paper, the CPU assesses an initial residual jam.

b. If the CPU has not received an automatic delivery command to automatically deliver paper from the printer within 3 minutes, it assesses an initial residual jam.

c The CPU detects that an initial residual jam has occurred if one of the following sensors detects the presence of paper even after the printer has performed an automatic delivery of the relevant paper. After the power switch is turned ON and the fixing roller has reached its prescribed temperature (150°C), or the printer outputs the paper automatically.

- Registration paper sensor (PS1)
- Pick-up unit paper sensor (PS2)
- Fixing unit delivery sensor (PS1403)
- Face-down tray delivery sensor (PS1402)

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VI. OVERALL CONTROL SYSTEM

A. Video Controller PCB

1. Outline

The video controller PCB receives print data consisting of codes or image data from an external device (host computer, etc.) via the interface cable. The video controller PCB analyzes and processes the print data, including the items specified from the control panel, and converts it to dot data. The dot data is sent to the DC controller PCB to control laser diode emission. Figure 2-6-1 shows the layout of main ICs on the DC controller PCB, and Figure 2-6-2 is a block diagram.

2. Functions by block

a. CPU (IC29)

The CPU is an Intel 32-bit RISC microprocessor (A80960HD-66). The CPU produces and analyzes the various interface data, creates image data and processes commands via ASIC according to the control program stored in the ROM.

b. ASIC (IC21)

The ASIC contains a circuit which controls the LBP, and separately processes the ROM and RAM. ASIC controls the video controller according to the control program stored in the ROM.
The main functions are;

1) Controls the reading and writing of data to and from the DRAM on the video controller and the expansion RAM SIMM.
2) Creates address information for accessing data from the ROM on the video controller and optional ROM DIMM.
3) Controls the video interface, expansion interface, and the standard-equipped bi-directional parallel interface (Centronics specifications).

c. AIR (IC10)

This ASIC has a built-in SRAM which contains a smoothing control circuit.
The main functions are;

1) Controls image smoothing.
2) Controls output of the video signal to the DC Controller.
3) Controls the operation panel interface.
4) Creates address information for accessing data from the EEPROM on the video controller.

d. DRAM

The DRAM has a memory capacity of 4M and stores the following information.

1) Print data which is input from the external device (receive buffer).
2) Pattern data converted from code or image data (bit map memory).
3) Fonts processed within the video controller (font cache memory).

The memory can be expanded to a maximum of 96M bytes by installing 1, 2, 4, 8, 16, or 32M byte SIMMs in the three slots on the video controller PCB.

e. ROM DIMM

The 4MB ROM DIMM is installed in one of the two ROM DIMM slots, in which operation sequence control program of video controller circuit and fonts are stored. An optional ROM DIMM can be installed in the other slot.

f. EEPROM (IC11)

The EEPROM is used to store printer factory defaults and those valuse changed from the control panel across job boundary and power cycles of the engine.

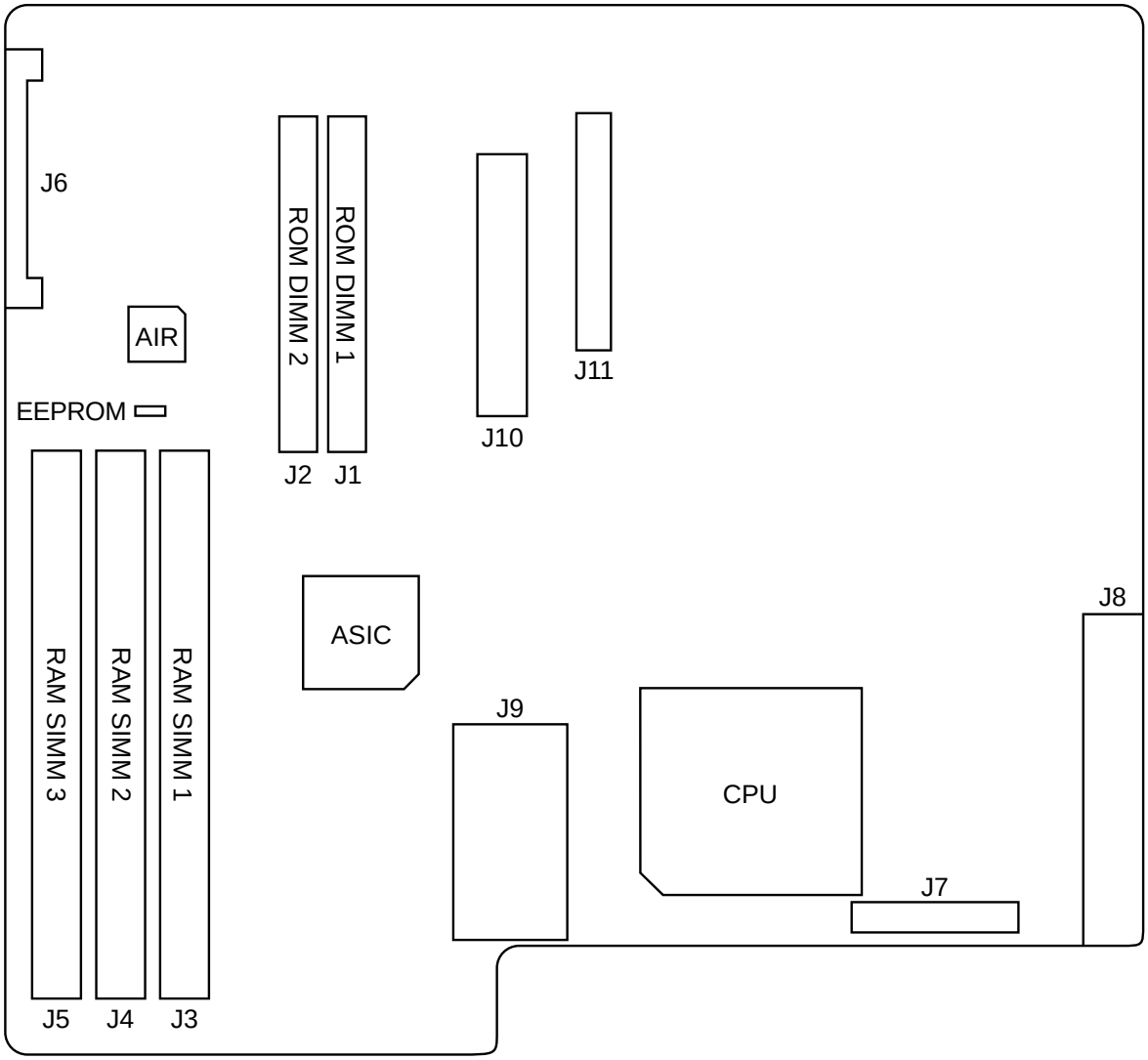

J6
AIR
EEPROM
ROM DIMM 2
ROM DIMM 1
J2
J1
J10
J11
RAM SIMM 3
RAM SIMM 2
RAM SIMM 1
J5
J4
J3
ASIC
J9
CPU
J8
J7

Figure 2-6-1

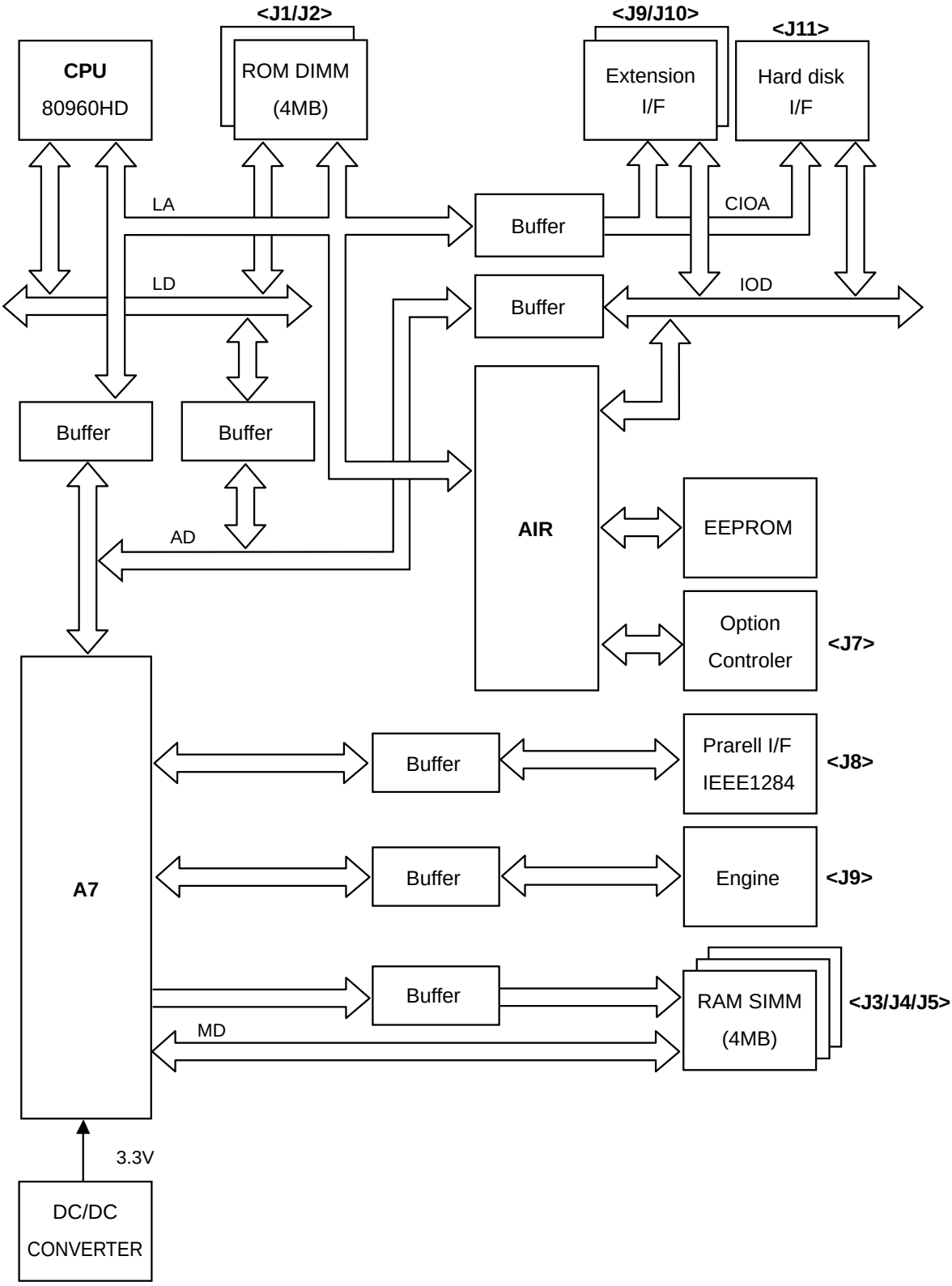

<J1/J2>
<J9/J10>
<J11>
CPU
80960HD
ROM DIMM
(4MB)
Extension
I/F
Hard disk
I/F
LA
CIOA
Buffer
LD
Buffer
IOD
Buffer
Buffer
AIR
EEPROM
AD
Option
Controler
<J7>
A7
Buffer
Prarell I/F
IEEE1284
<J8>
Buffer
Engine
<J9>
Buffer
RAM SIMM
(4MB)
<J3/J4/J5>
MD
3.3V
DC/DC
CONVERTER

Figure 2-6-2

B. Control Panel

1. Outline

The control panel contains 7 LEDs, one LCD (liquid-crystal display), 9 switches, and one buzzer on the control panel. The control panel is connected to the video controller PCB, and has the following functions.

a. Displays status and error messages on the LCD.
b. Displays the printer operating status on the LEDs.
c. Selects the printing environment, operating mode, utility, and paper source with switches.
d. Sounds the buzzer if a switch input is ineffective or an error occurs.

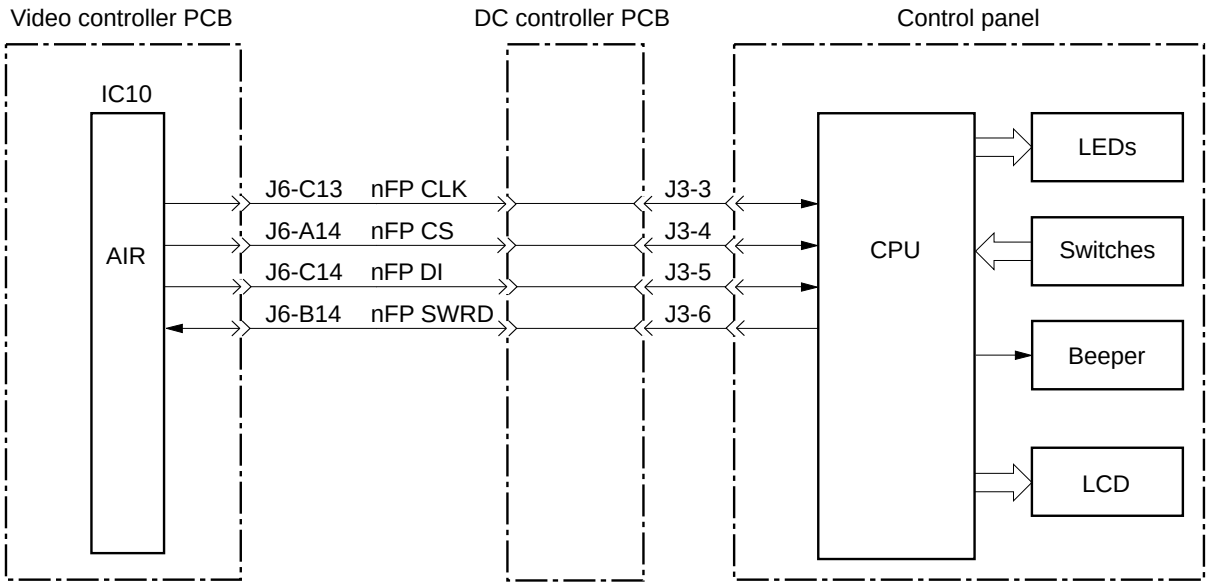


Figure 2-6-3

2. Operation

The LEDs, LCD, and buzzer on the control panel are controlled by signals from the video controller. All signals generated by control panel switches are input to the video controller. Table 2-6-1 lists the input and output signals.

Table 2-6-1

Pin No.	Signal name	Meaning
J3-1	GND	GND
J3-2	+5V	+5V
J3-3	nFP CLK	Front Panel CLocK
J3-4	nFP CS	Front Panel contoller Chip Select
J3-5	nFP DI	Front Panel serial input signal
J3-6	nFP SWRD	Front Panel serial output signal

VII. OPTION CONTROL SYSTEM

A. Option Controller

1. Outline

To use the paper deck installed to the printer, the option controller needs to be attached to the printer. The option controller is a 16-bit microcomputer (CPU: IC101) that controls serial communication with the video controller and serial communication with the paper deck.

The option controller controls the paper deck according to the various commands and signals sent from the video controller and signals sent from the DC controller.

Figure 2-7-2 shows a block diagram of option controller.

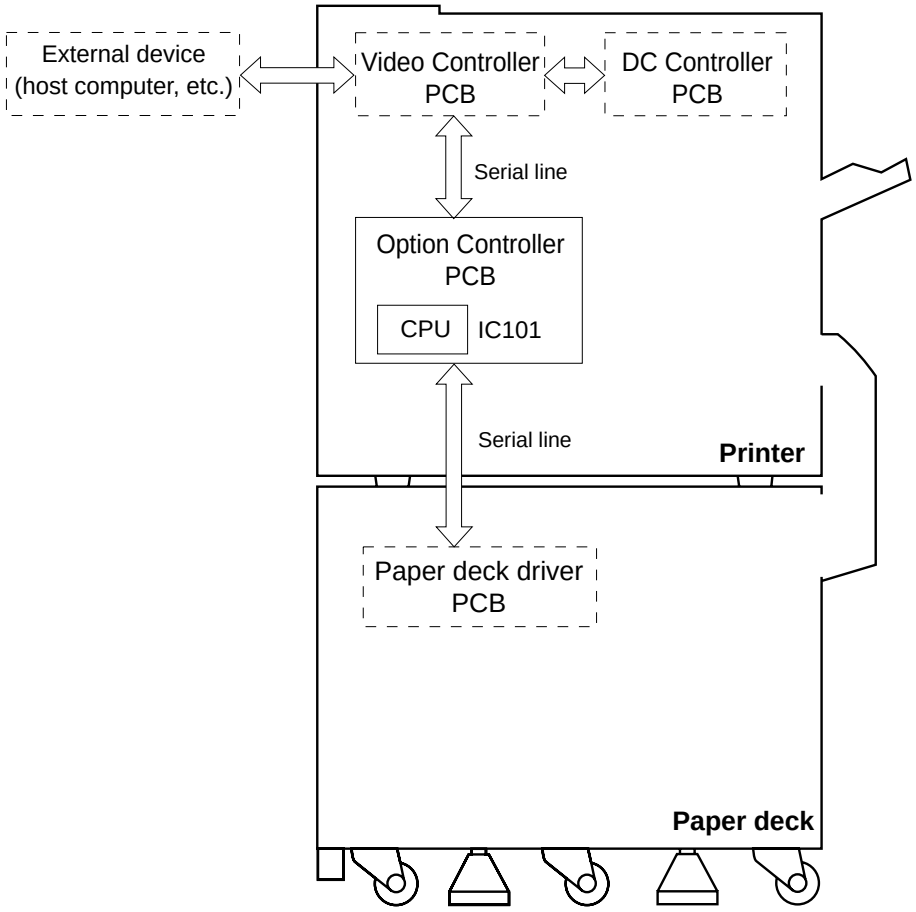


Figure 2-7-1

2. Explanation of main ICs

a. CPU (IC101)

An NEC 1-chip microcomputer (UPD784020GC-3B9) is used. The CPU communicates with the video controller and controls the optional paper deck.

b. EP-ROM (IC109)

The EP-ROM has a memory capacity of 64K bytes, and contains the control program for the paper deck's operation.

c. S-RAM (IC110)

The S-RAM has a memory capacity of 32K bytes, and contains the communication data with the video controller and the paper deck.

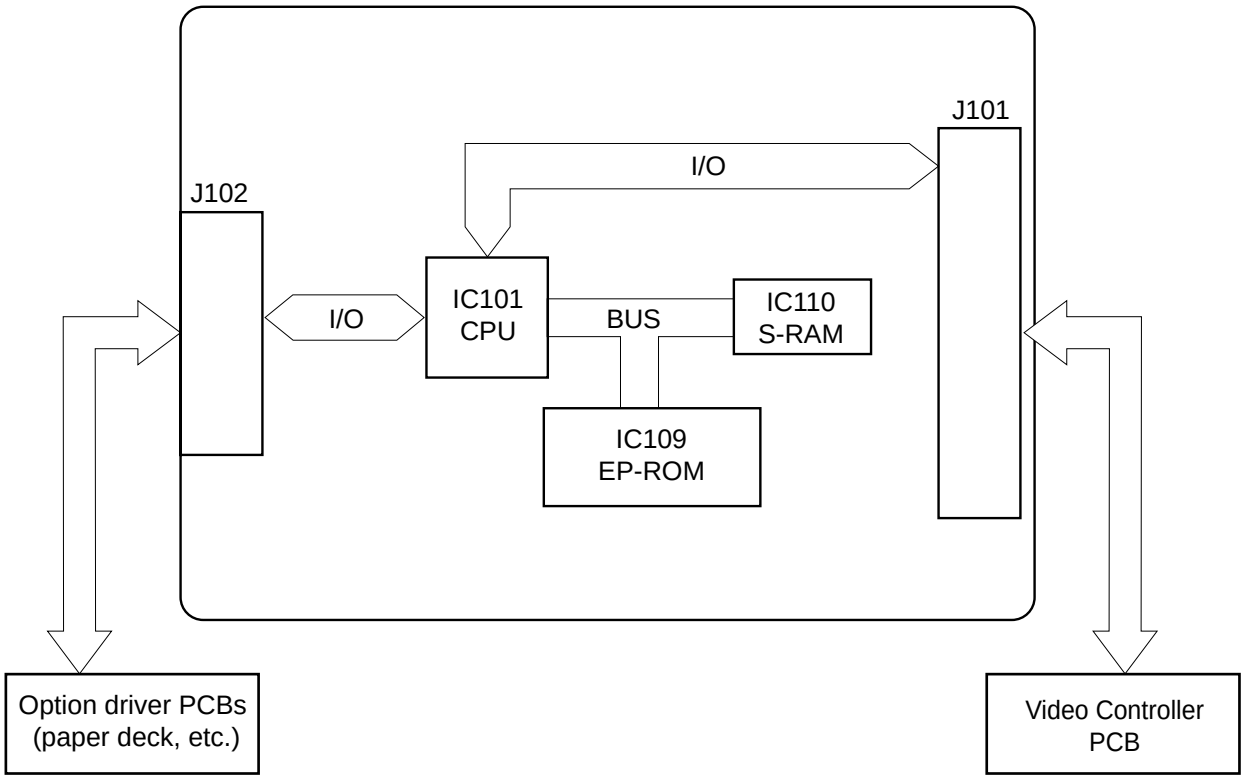


Figure 2-7-2

B. Operation Outline

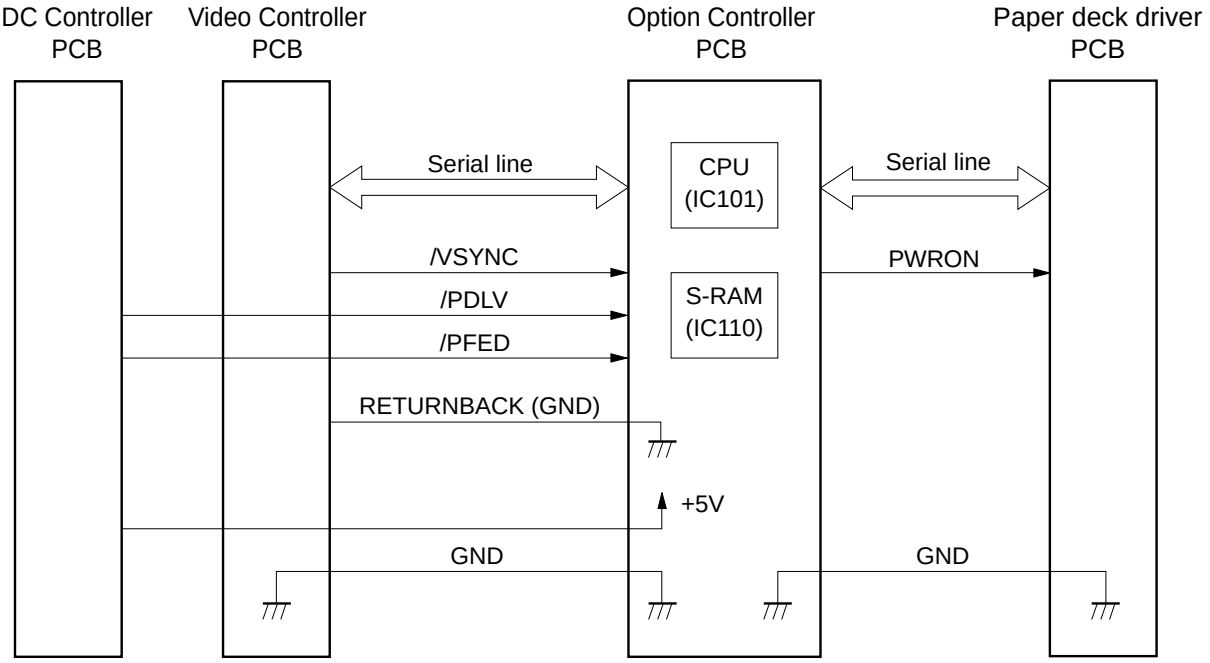


Figure 2-7-3

The video controller supplies a +5V power supply to the option controller when the printer power is turned ON, and communication between them commences after a specified period of time.

The video controller sends the status of pick-up source and paper size for each page printed to the option controller. The paper feeding condition of the paper deck is sent from the option controller back to the video controller.

The microcomputer (CPU) on the option controller sends a power ON (PWRON) signal to the paper deck, turning the paper deck's power ON. Following this, the option controller and the paper deck commence serial communication.

The option controller sends pick-up and delivery command data for each page printed to the paper deck based on data and the vertical synchronized signal (/VSYNC) from the video controller along with paper feed (/PFED) and paper delivery (/PDLV) signals output from the DC controller. The paper deck then returns its paper feed status back to the option controller.

The S-RAM (IC110) constantly stores the latest 40 pages of communication data allowing the CPU to control the paper deck paper feed in real time for each page printed. The video controller monitors the paper feed status of the paper deck in real time by obtaining S-RAM information via the option controller interface.

VIII. ENVELOPE FEEDER

A. Outline of the Electrical System

The envelope feeder operation sequence is controlled by the DC controller in the printer. The DC controller outputs paper pick-up commands (1st start, 2nd start) to the envelope feeder driver at the appropriate timing via serial lines. The envelope feeder driver drives the motor according to these commands. The envelope feeder driver then notifies the DC controller of the envelope feeder's status.

The figure below outlines the flow of signals between the envelope feeder and the printer.

The envelope feeder is supplied with +24VDC from the printer.

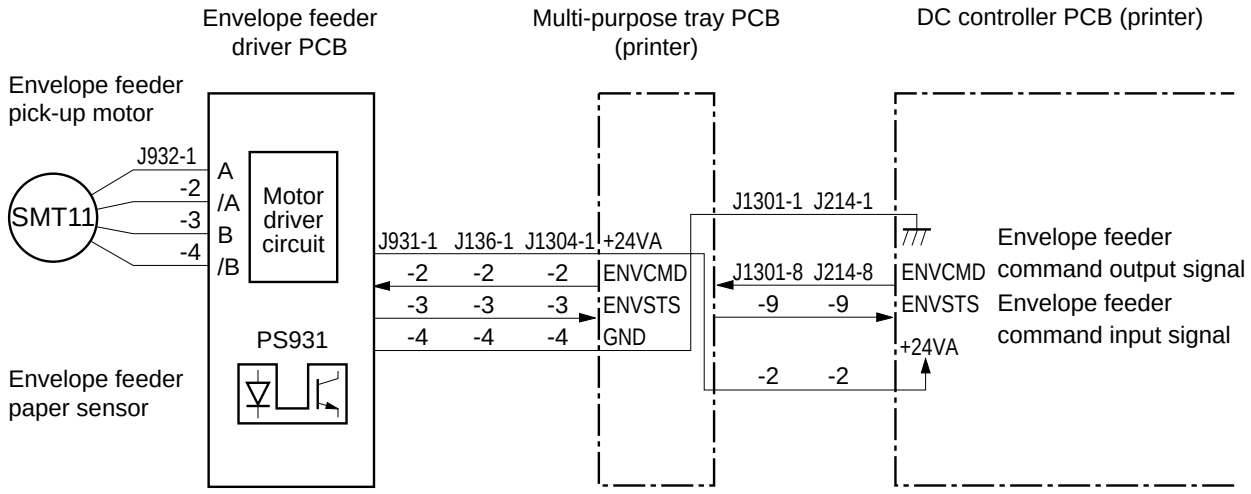


Figure 2-8-1

B. Paper Pick-up/Feed System

The envelope feeder motor is a stepping motor (SMT11) that rotates clockwise and counter-clock wise according to commands received from the envelope feeder driver.

When the motor rotates clockwise, all rollers in the envelope feeder are rotated, however when rotated counter clock wise only the upper separation and feed rollers are rotated.

The envelope feeder driver rotates the pick-up motor for about 1.0 second after receiving the 1st start command from the DC controller. After 0.1 second, the motor is rotated counter-clock wise for about 1.9 seconds. This process picks-up and feeds the envelope into the printer.

The envelope is stopped when it is 16mm past the registration paper sensor (PS1). Following this, the envelope feeder driver rotates the motor counter-clock wise according to the 2nd start command received for about 1 second to feed the envelope again.

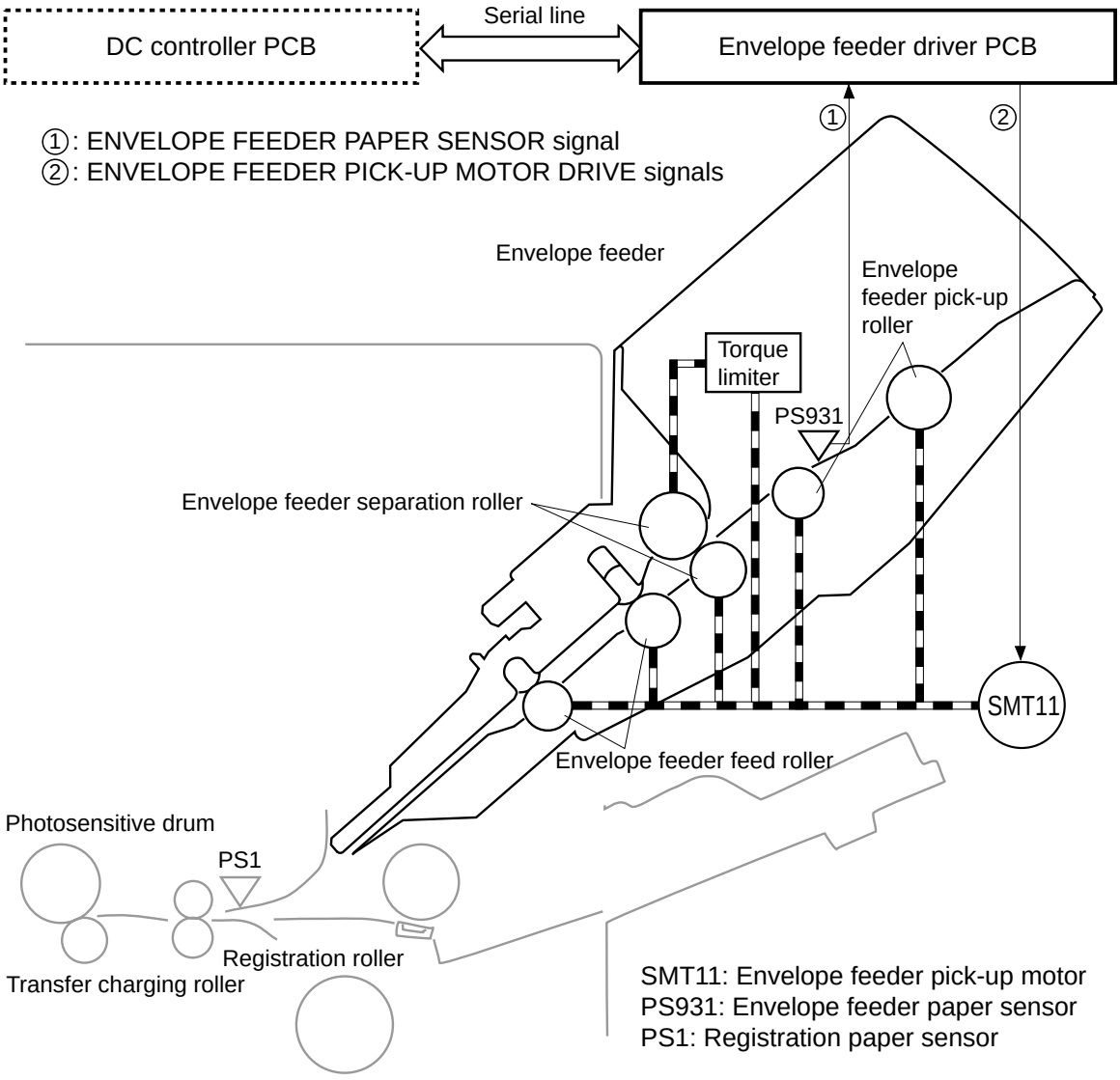


Figure 2-8-2

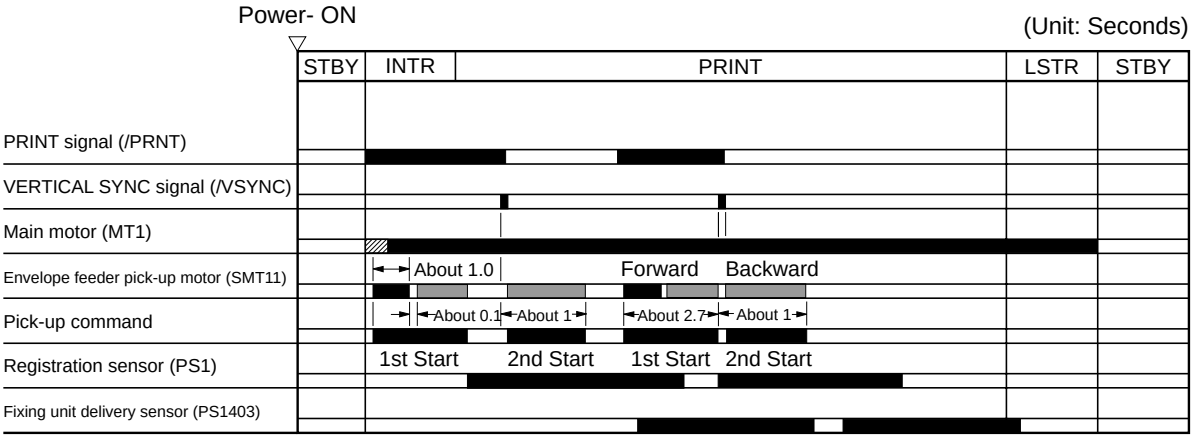


Figure 2-8-3

The upper separation roller is driven by the motor through a torque limiter.

In a normal situation, the upper separation roller imparts a rotational force in the same direction as the pick-up and lower separation roller (shown by the white arrow in top figure 2-8-4). However, the upper separation roller, envelope, and lower separation roller are all in contact with each other. Therefore, the upper separation roller is forced to rotate in the opposite direction (in the direction of the black arrows in middle figure of 2-8-4) through the movement of the envelope, which is driven by the lower separation roller.

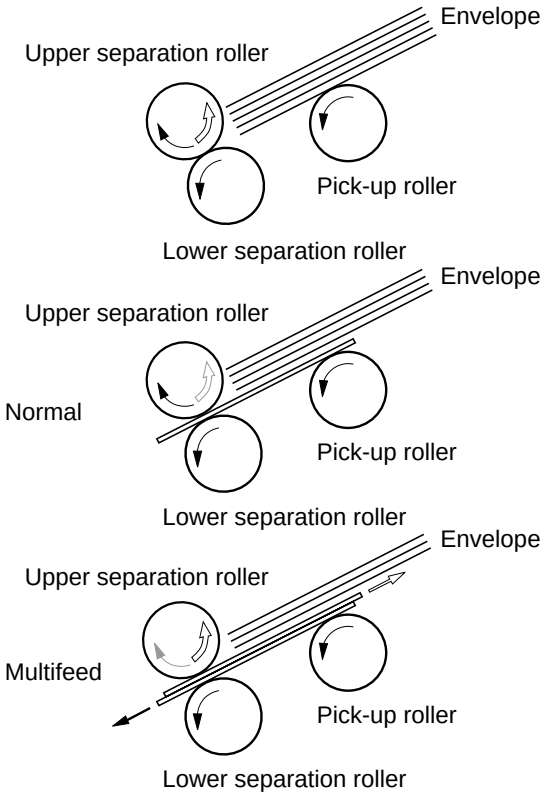


Figure 2-8-4

As the friction between envelopes is weak when ened two or more envelopes are fed simultaneously (multi-feed), the rotating force of the lower roller is not strong enough to keep the upper roller rotating in its original direction. The upper roller therefore rotates in the opposite direction to the pick-up direction (shown by white arrows in figure 2-8-4 below)

Any extra envelopes are returned to the feeder while only one is sent through into the printer.

C. Paper Jam Detection

Paper jams are detected in the envelope feeder pick-up and feed path in the same fashion as in the main unit. (refer to pages 2-55 - 58 for details)

IX. DUPLEXING UNIT

A. Outline of the Electrical System

The operation sequences of the duplexing unit are controlled by the duplexing driver PCB. This PCB utilizes a 4 bit microcomputer (CPU, IC2002) to control the serial communication between the duplexing unit and the DC controller PCB in the printer.

The CPU drives the motors, solenoids and the clutch according to commands sent from the DC controller PCB to the duplexing unit and second-pass pick-up commands via serial communication.

The duplexing unit is supplied with +24VDC from the printer. +5V is produced within the duplexing driver PCB for the ICs and sensors.

The flow of signals between the duplexing unit and the printer are outlined in the figure below.

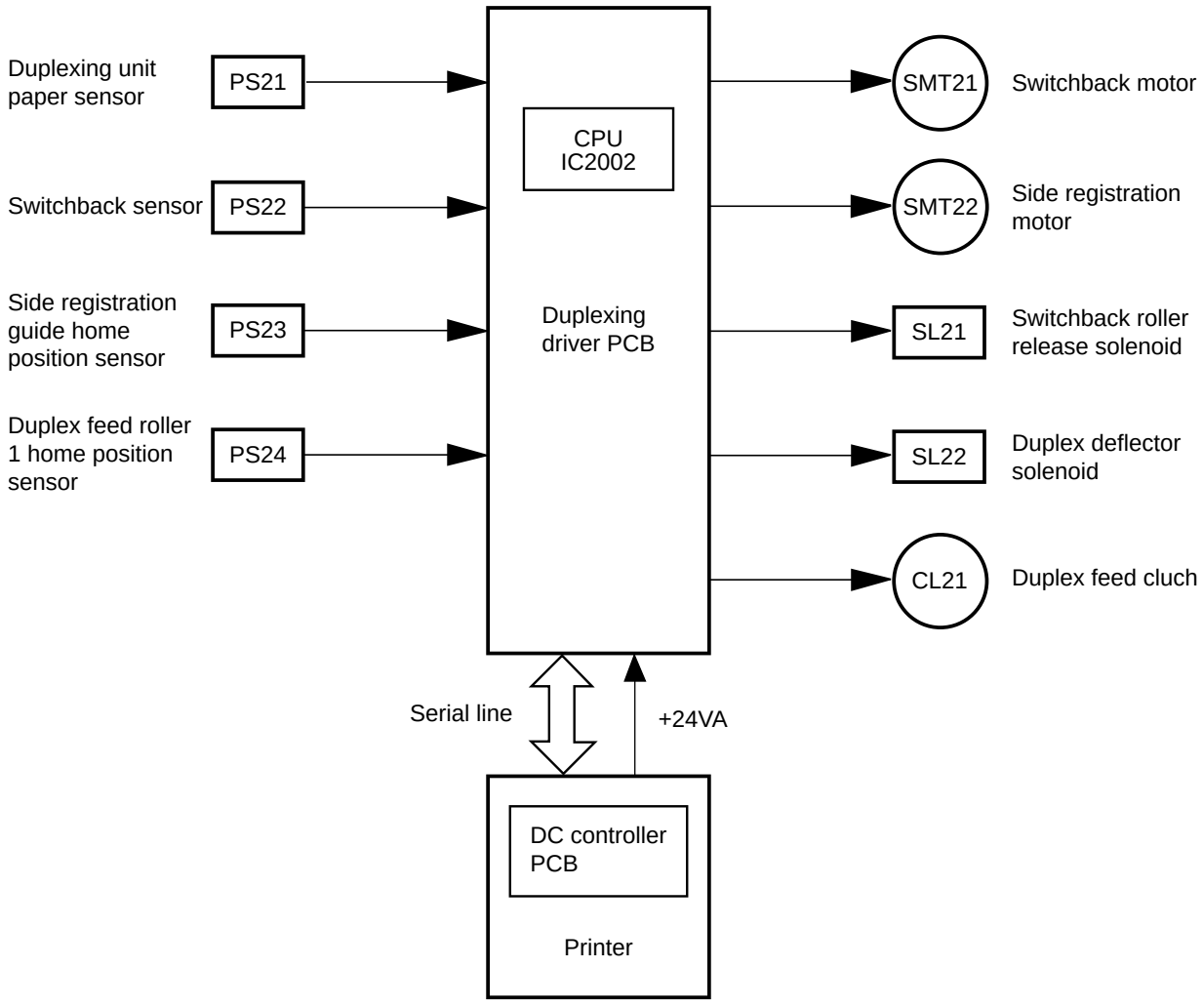


Figure 2-9-1

B. Duplexing Driver Input Signals

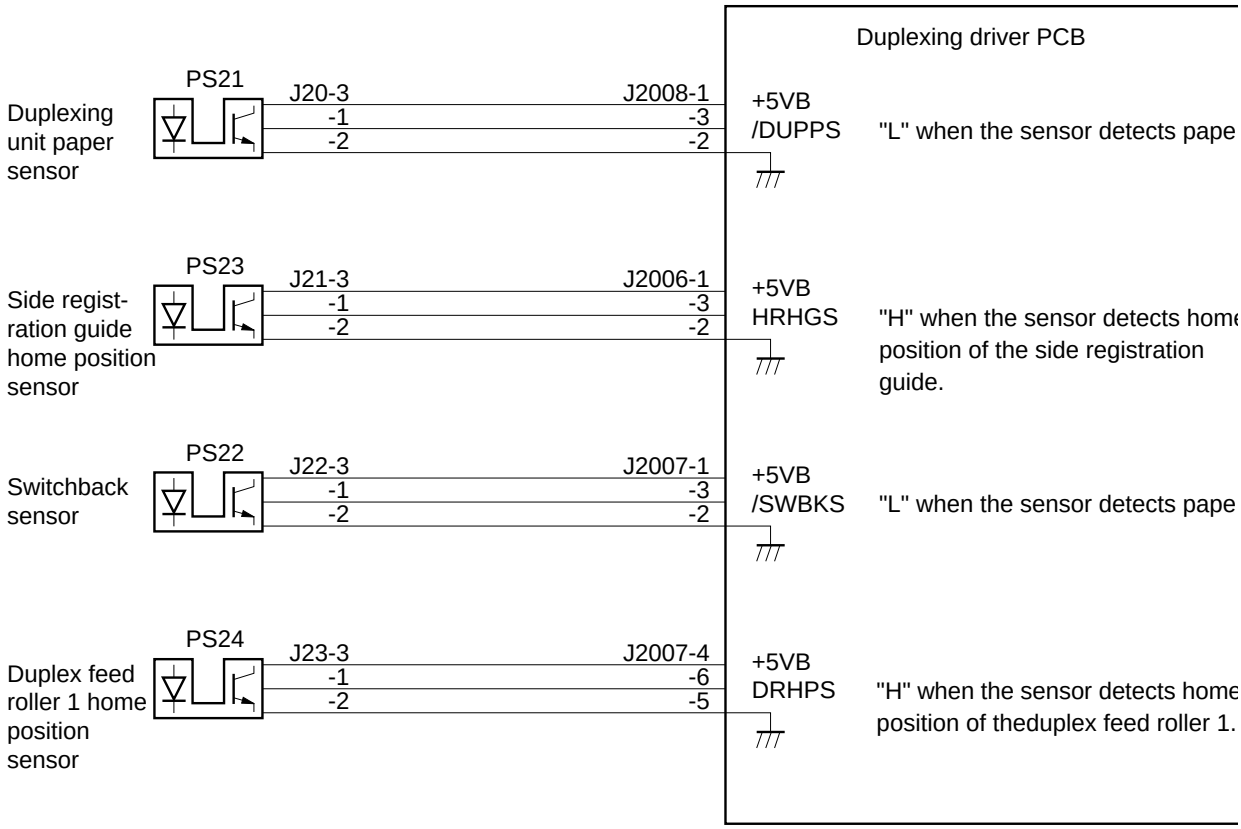


Figure 2-9-2

C. Duplexing Driver Output Signals

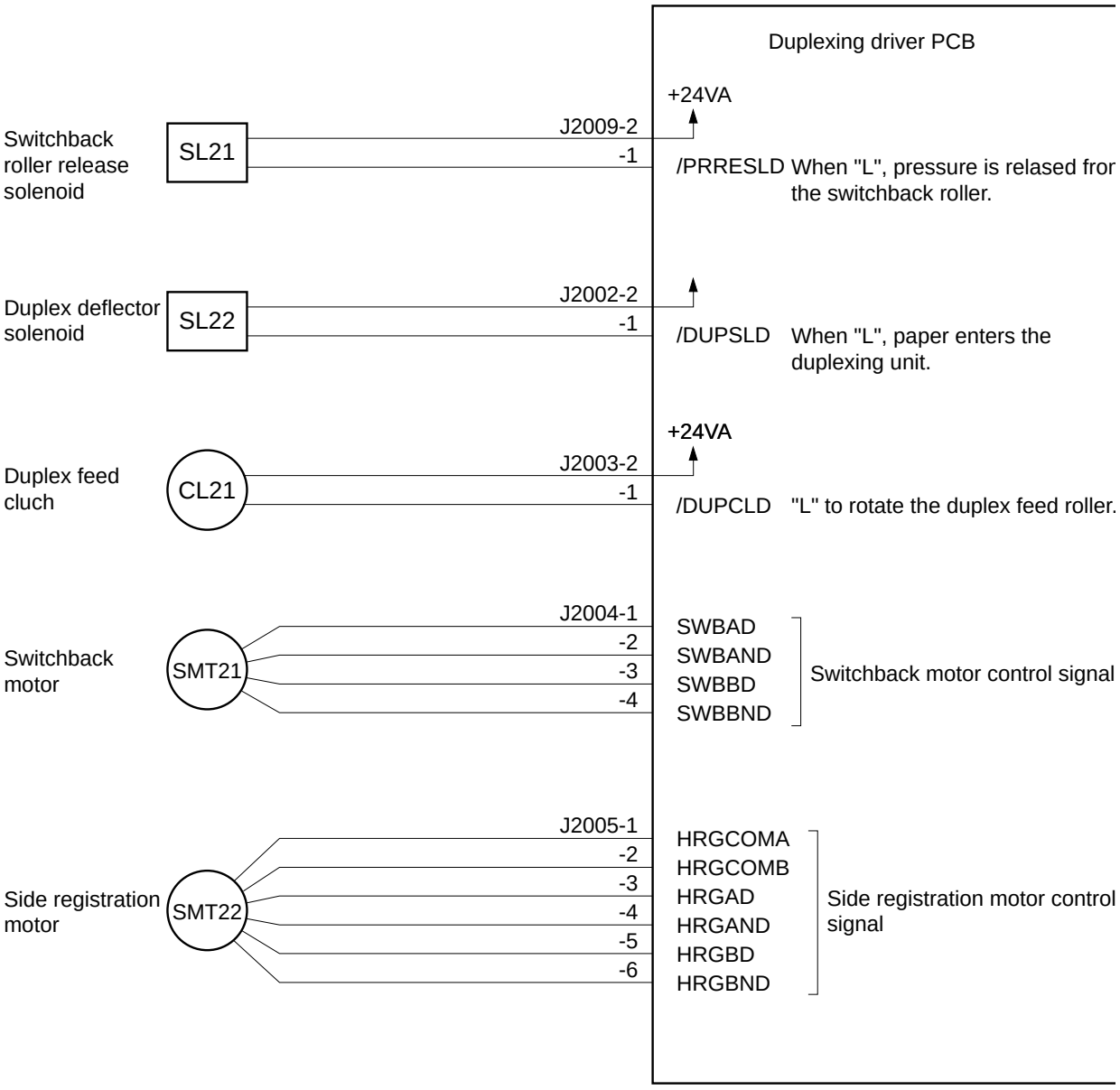


Figure 2-9-3

D. Paper Pick-up/Feed System

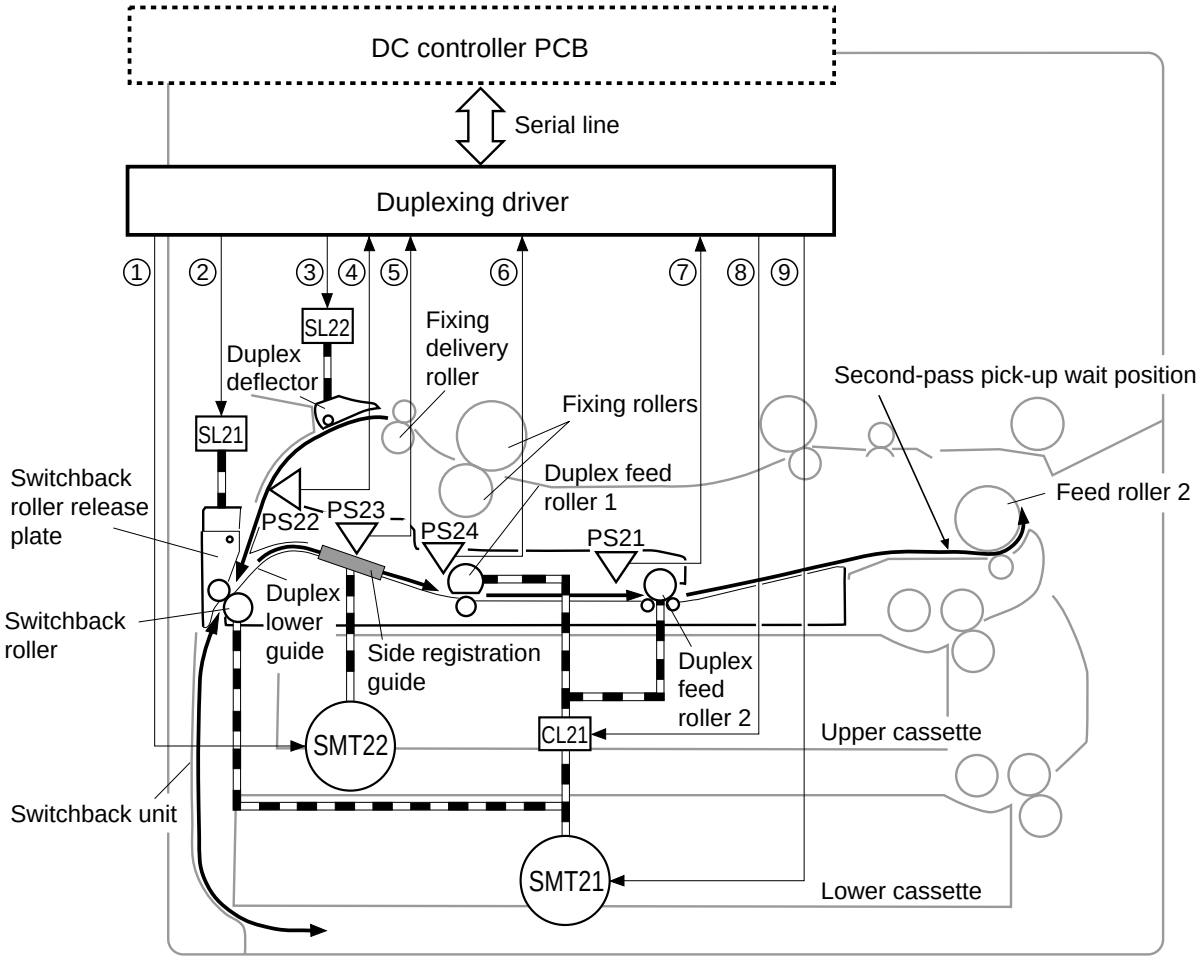
1. Outline

Paper is guided through the duplexing unit by the duplex deflector to the switchback unit.
The paper sent to the switchback unit is then fed back into the duplexing unit by reversing the direction of the paper feed of the switchback roller. Once in the duplexing unit the paper is aligned with the side registration guides and re-fed into the printer by the duplex feed rollers 1 and 2.

The switchback roller is rotated from the drive of the switchback motor (SMT21). The duplex feed clutch controls the drive of the switchback motor (SMT21) which rotates duplex feed rollers 1 and 2.

The switchback motor (SMT21) is a stepping motor, and can be rotated clock wise or counter-clock wise according to signals sent from the CPU on the duplexing driver PCB.

The side registration guides are driven by the side registration motor (SMT22) which drives to suit the size of paper accordingly.



①: SIDE REGISTRATION MOTOR DRIVE signal
②: SWITCHBACK ROLLER RELEASE SOLENOID DRIVE signal (/PRRESLD)
③: DUPLEX DEFLECTOR SOLENOID DRIVE signal (/DUPSLD)
④: SWITCHBACK PAPER SENSOR signal (/DUPIDS)
⑤: SIDE REGISTRATION GUIDE HOME POSITION SENSOR signal (HRHGS)
⑥: DUPLEX FEED ROLLER 1 HOME POSITION SENSOR signal (DRHPS)
⑦: DUPLEXING UNIT PAPER SENSOR signal (/DUPPS)
⑧: DUPLEX FEED CLUTCH DRIVE signal (/DUPCLD)
⑨: SWITCHBACK MOTOR DRIVE signal

SMT21: Switchback motor
SMT22: Side registration motor
SL21: Switchback roller release solenoid
SL22: Duplex deflector solenoid
CL21: Duplex feed cluch
PS21: Duplexing unit paper sensor
PS22: Switchback sensor
PS23: Side registration guide home position sensor
PS24: Duplex feed roller 1 home position sensor

Figure 2-9-4

2. Switchback System

When the CPU receives commands sent from the printer to the duplexing unit, it turns the duplex deflector drive solenoid (SL22) ON, and the paper is sent into the duplexing unit.

When the leading edge of the paper is detected by the switchback paper sensor (PS22) , the CPU rotates the switchback motor (SMT21) backwards (CCW) (*note) to feed the paper into the switchback unit. Once the trailing edge is detected by sensor PS22, and after a specified period of time, the CPU rotates motor SMT21 forward (CW) into the standard feeding direction. Because the paper is fed along the duplex lower guide, it is sent into the duplex feed rollers side of the duplexing unit.

Note: When the size of paper being used is anything other than ledger, A3, B4 and legal, the distance between pages shortens. The CPU therefore drives SMT21 into high speed rotation after a set period of time to feed the paper into the switchback unit.

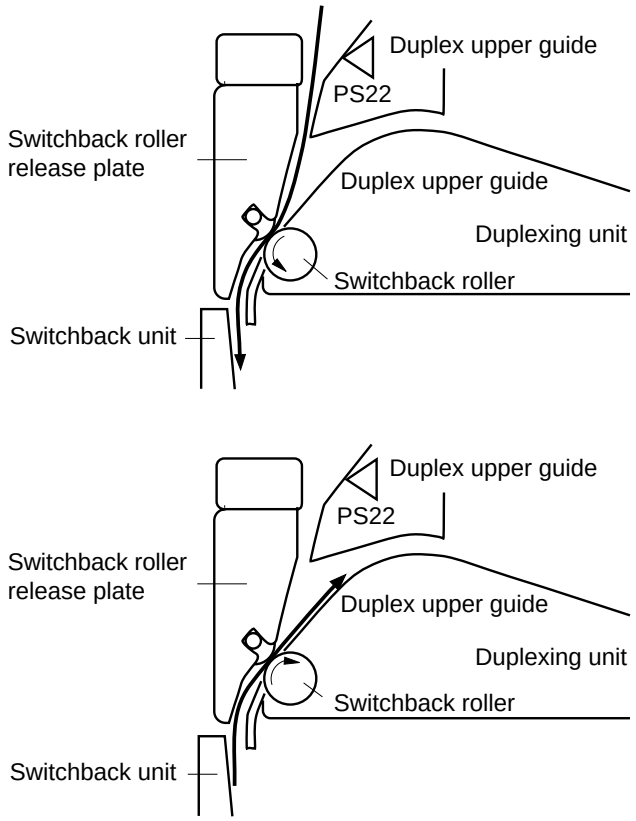


Figure 2-9-5

3. Side Registration Adjustment System

When duplex printing, the center of the horizontal scanning direction for the second time print is aligned with the center of the printable area on the drum with side registration adjustment. This adjustment is conducted directly after duplex feed roller 1 starts to rotate, to make sure that the edges of the page are aligned to the side registration guides.

The side registration guide home position sensor (PS23) detects whether or not the guides are in their home position.

When the power is turned ON, the CPU drives the side registration motor to return the guides back to their home position. If the guides are already in their home position when the power is turned ON, they are moved slightly, then returned to the home position.

When a print is sent to the duplexing unit with the switchback roller (rotating clock wise), the CPU turns ON the duplex feed clutch approx.0.6 second after activating the motor CW. The print is then fed until the duplex feed roller 1 home position is detected by its home position sensor (PS24). When detected, the CPU turns OFF CL21, and the paper is stopped. Following this, the CPU activates the switchback roller pressure release solenoid (SL21), releasing pressure from the roller. This completes preparation for the side registration adjustment operation.

The CPU drives the side registration motor (SMT22) at its specified pulse rate based on the paper size information received from the DC controller. The side registration guides are then moved according to the size of paper being used, and registration adjustment (*note) takes place.

The side registration guides are returned to their home position at a set time after the print has been fed and the leading edge has been detected by the duplexing unit paper sensor (PS21). SMT22 is a stepping motor, enabling it to accurately control the movement of the side registration guides.

The CPU notifies the video controller via the DC controller of a side registration guide malfunction when the side registration guides take longer than the regulated maximum movement allowance after the home position detection begins.

Note: When the size of paper is anything other than A3, Ledger, A4 (landscape), Letter (landscape) or B4, the distance that the side registration guides move is lengthened. Therefore, the CPU drives SMT22 while the switch-back roller is rotating CCW, then moves the registration guide. When the paper size is A3, Ledger, A4 (landscape), Letter (landscape) or B4, at the point at which the CPU rotates the switch-back roller in a clockwise direction, it drives SMT22 and moves the side registration guides move quickly.

---

4. Second Feed Pick-up System

On completion of the side registration adjustment, the CPU turns ON the duplex feed clutch (CL21). The CPU turns OFF CL21 approx. 1.0 second (1.9 seconds for wide and narrow paper types) after detecting the leading edge of the paper at the duplexing unit paper sensor (PS21). The CPU then stops the paper at the second-pass pick-up wait position and waits for second-pass pick-up command to be input from the printer.

On receival of these commands the CPU controls the feeding speed of the switchback motor (SMT21) according to the paper feed speed of the printer. Following this CL21 is turned ON and the paper is fed into the printer.

E. Paper Jam Detection

The following paper sensors are installed to detect the presence of paper and that paper is being fed correctly.

• duplexing unit paper sensor (PS21)
• switchback paper sensor (PS22)

Jams are detected by the CPU on the duplexing driver PCB by determining whether or not paper is at the appropriate sensor at the correct pre-set timing.

When the CPU assesses that a jam has occurred, the duplex feeding process is stopped and the DC controller is notified of the jam.

Note: Times T1 and T2 indicate the smallest and largest paper sizes respectively.

---

1. Switchback unit delay jam

When the paper has not reached the switchback paper sensor (PS22) in the specified time after the duplexing pick-up process has begun, the CPU assesses that a switchback unit delay jam has occurred.

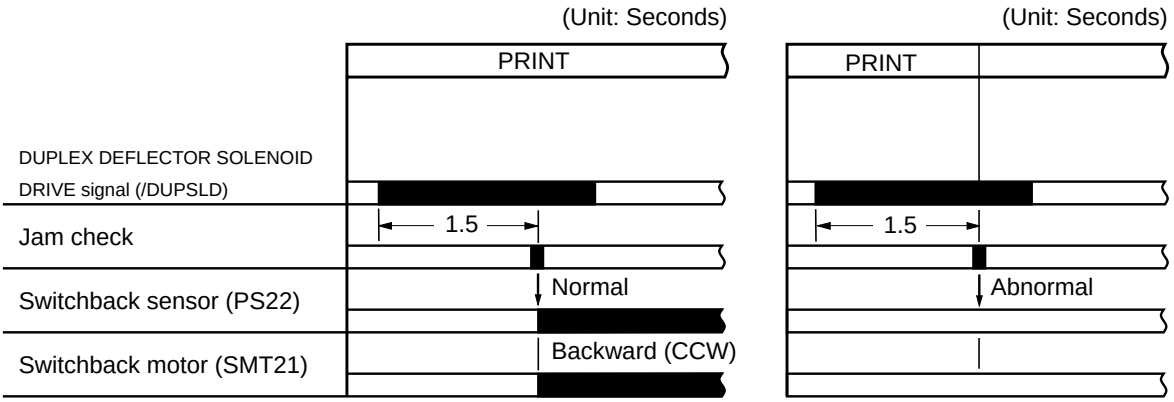
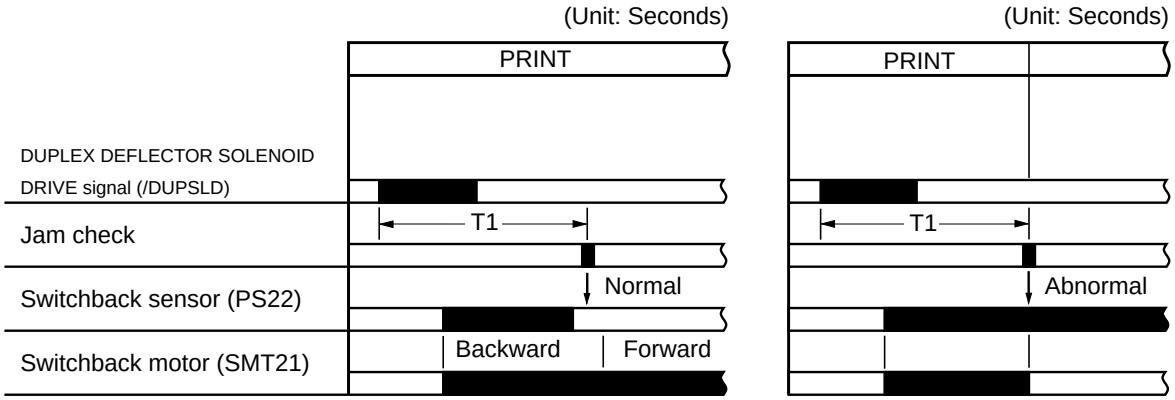


Figure 2-9-6

2. Switchback stationary jam

When the paper has not passed through the switchback paper sensor (PS22) in the specified time after the duplexing pick-up process has begun, the CPU assesses that a switchback unit stationary jam has occurred.

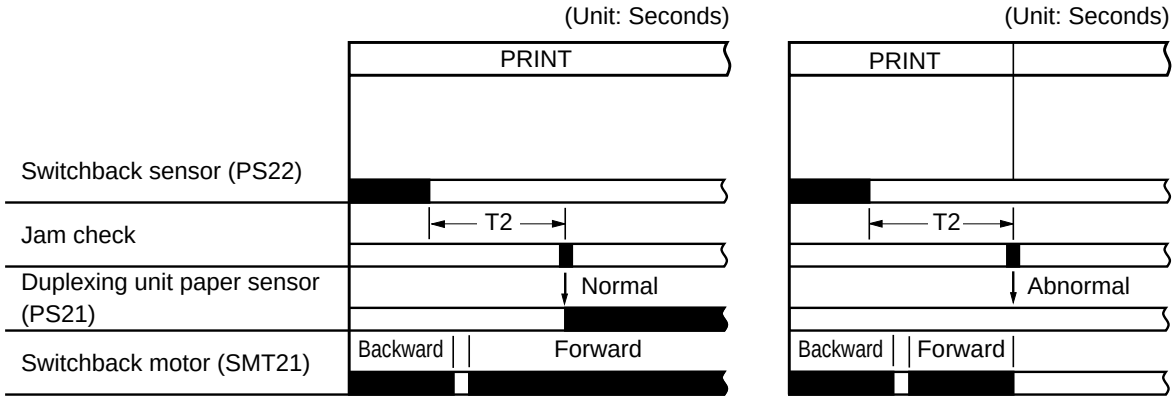


T1: About 3.7 seconds (A4), About 5.8 seconds (Ledger)

Figure 2-9-7

3. Duplex feed unit delay jam

When the paper has not reached the duplexing unit paper sensor (PS21) after leaving the switchback paper sensor (PS22) in the specified time, the CPU assesses that a duplex feed unit delay jam has occurred.



T2: About 2.4 seconds (A4), About 3.2 seconds (Ledger)

Figure 2-9-8

X. PAPER DECK

A. Outline

The paper deck sends the paper to the printer, which subsequently prints and delivers the paper. The printer is controlled by various commands sent from the video controller, whereas the paper deck is controlled by commands sent from the option controller. The option controller also controls the other options (stapler stacker, etc.) via the paper deck. The video controller controls the printer and the various options by controlling the DC controller and the option controller in the printer.

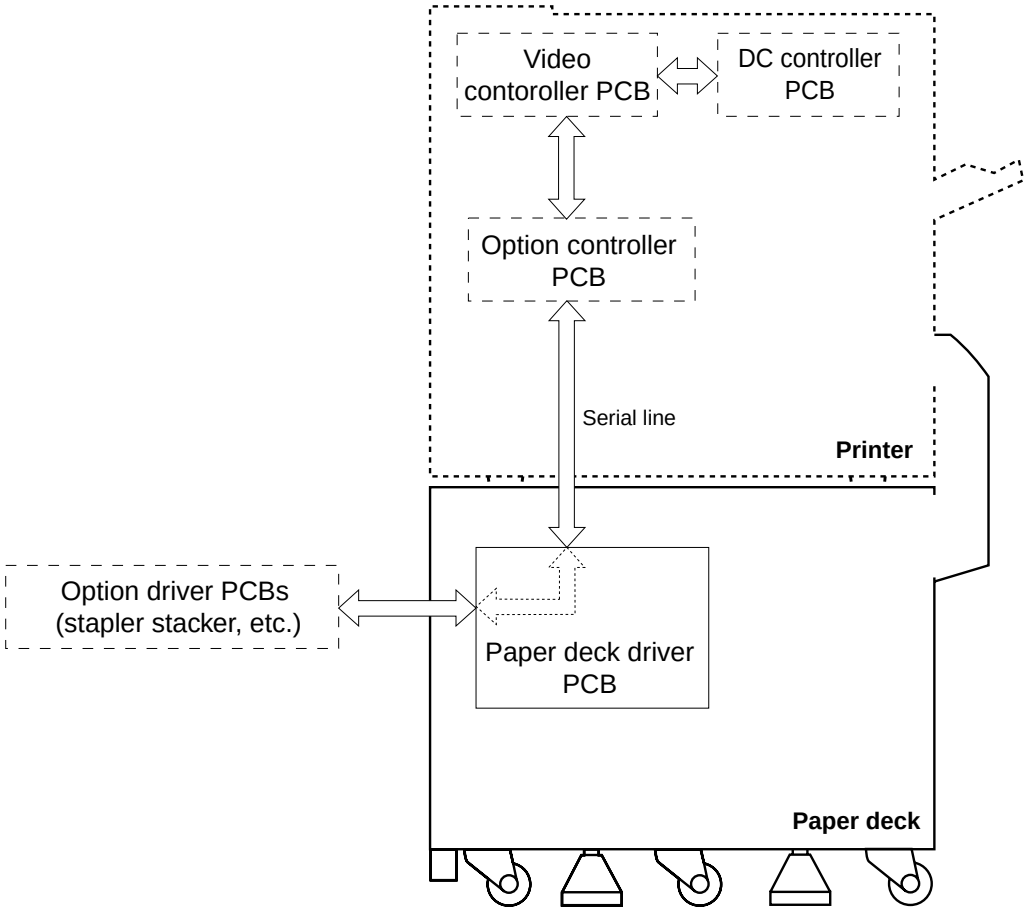


Figure 2-10-1

B. Outline of the Electrical System

The paper deck operation sequence is controlled by the paper deck driver PCB. The 8 bit CPU (IC201) in the paper deck driver PCB controls the operation sequence and serial communication with the option controller PCB.

The paper deck driver drives the solenoid and motors etc. with commands sent by serial communication from the option controller. The paper deck driver also notifies the option controller by serial communication of the status of the various sensors and switches.

The diagram below outlines the flow of signals between the paper deck and the option controller.

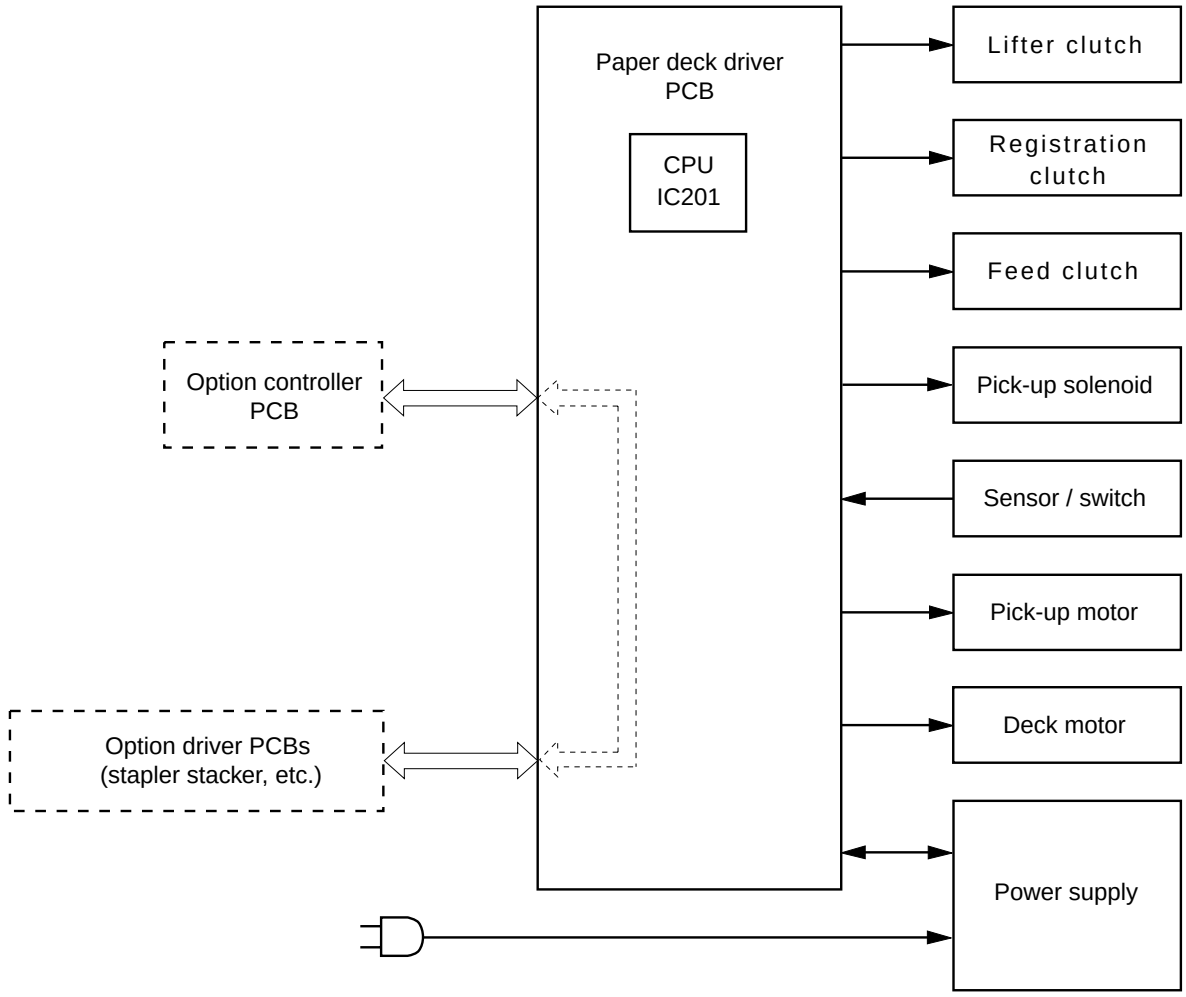


Figure 2-10-2

C. Paper Deck Driver Inputs

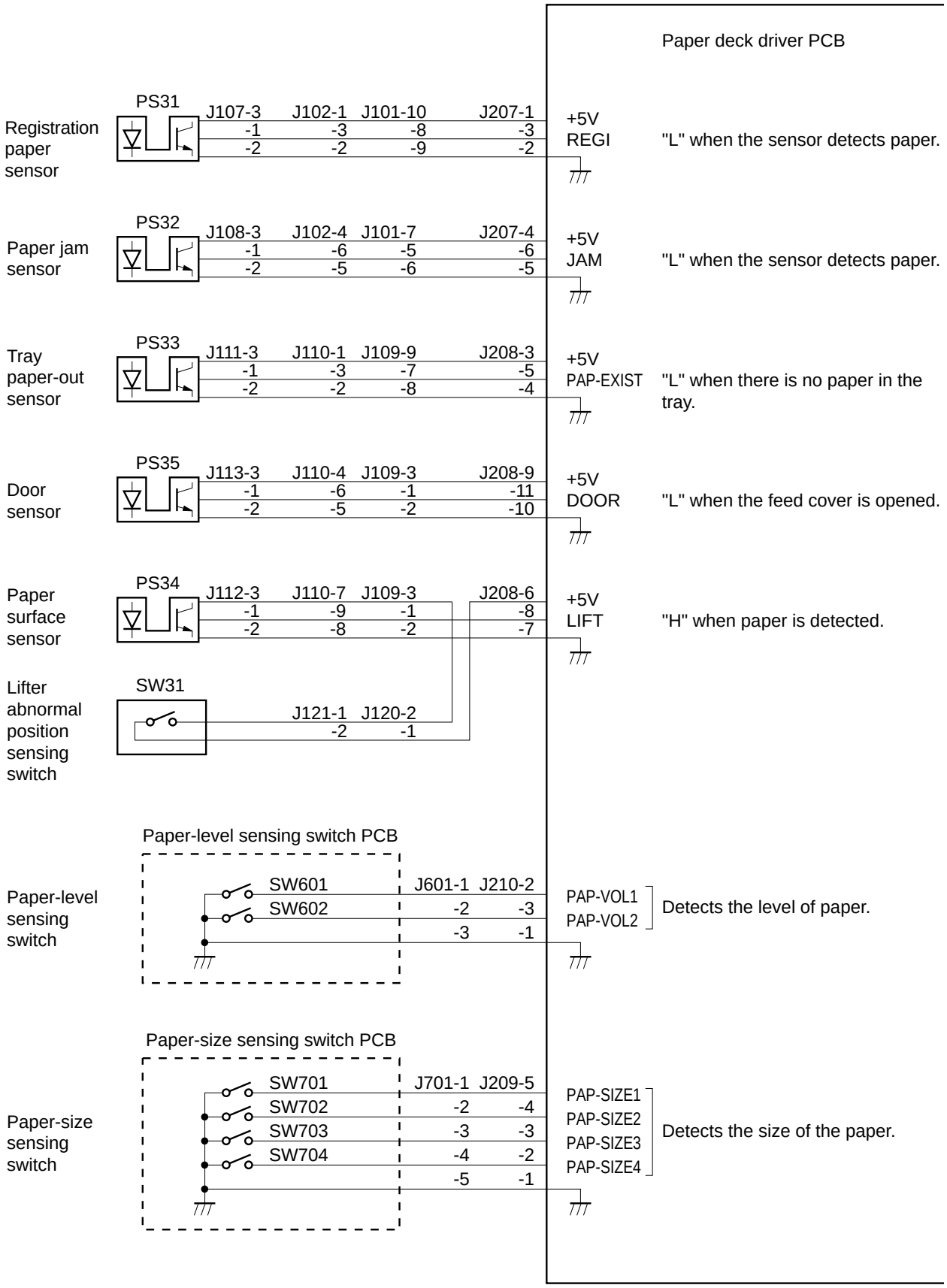


Figure 2-10-3

D. Paper Deck Driver Outputs

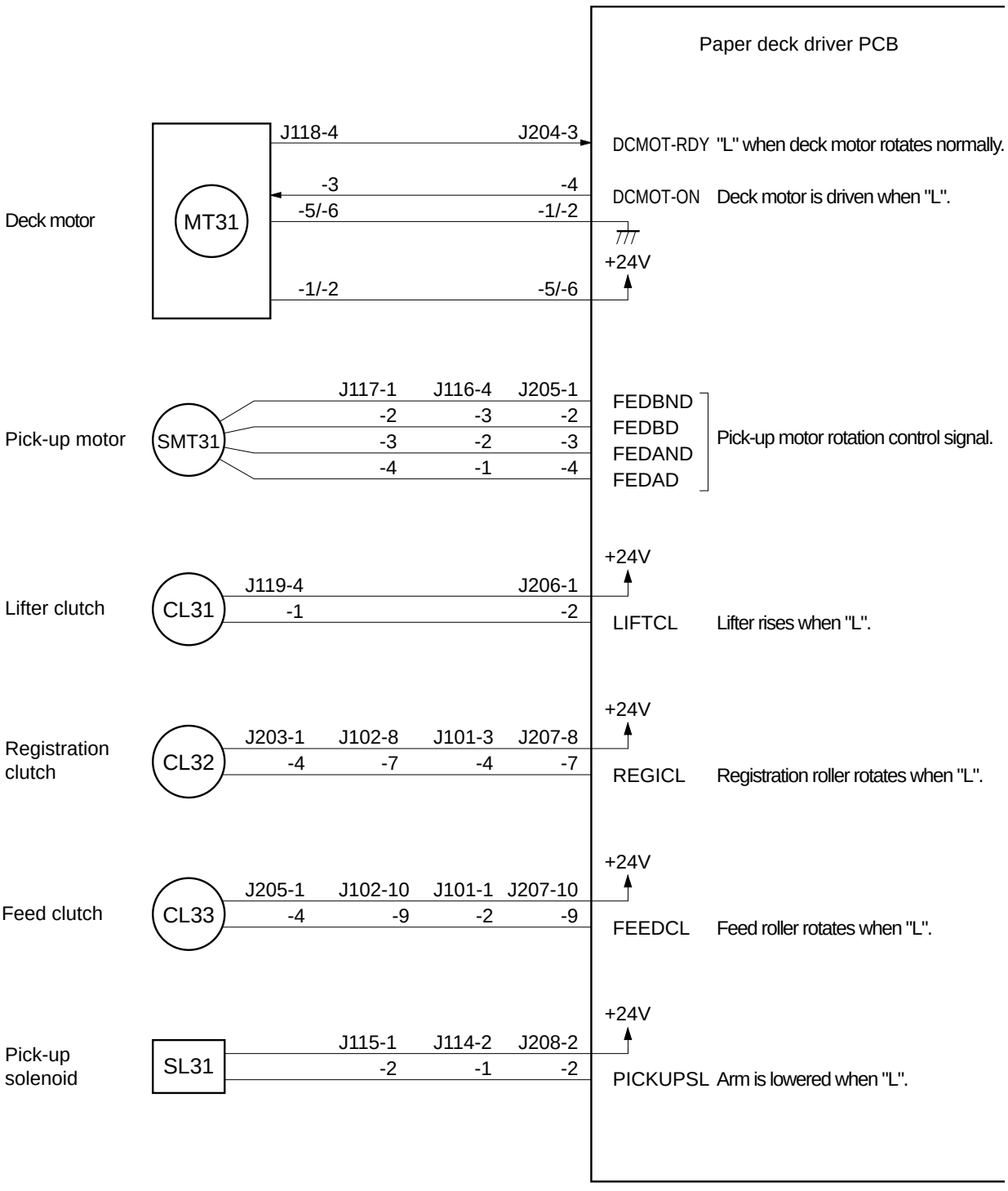


Figure 2-10-4

E. Pick-up/Feed System

1. Outline

Presence of paper in the paper deck is detected by the tray paper-out sensor (PS33), and the remaining amount of paper is detected by outputs from the paper-level sensing switch 1 (SW601) and paper-level sensing switch 2 (SW602). The combination of the two paper-level sensing switches is shown in table 2-10-1.

The size of the paper is detected by a combination of 4 paper-size sensing switches (SW701 - 704), which are shown table 2-10-2.

After receiving a pick-up command from the option controller the paper deck driver rotates the pick-up motor (SMT31), and simultaneously turns the pick-up solenoid (SL31) ON. The pick-up roller, feed roller1 and the separation roller then rotate sending a sheet of paper.

The paper sent into the feed unit passes through the registration paper sensor (PS31) and stops momentarily at the registration roller. The registration clutch (CL32) is then turned ON, and the paper is sent through into the printer.

The two photointerrupters (PS31,PS32) in the feed path detect the paper as it reaches and passes through them. If the paper does not reach or pass through the various sensors in the designated time, the paper deck driver assesses a paper jam and notifies the option controller while stopping the operation.

Table 2-10-1

Paper-size sensing switch		Remaining paper level	Remaining paper %
SW601	SW602		
ON	ON	Almost full	100
OFF	ON	High	75
OFF	OFF	Low	50
ON	OFF	Almost empty	25

Paper size	Cassette-size sensing switch			
	SW701	SW702	SW703	SW704
Ledger	OFF	ON	OFF	OFF
A3	ON	ON	OFF	OFF
B4	OFF	OFF	ON	OFF
Legal	OFF	ON	ON	OFF
Letter	OFF	ON	OFF	ON
A4	ON	ON	OFF	ON

Table 2-10-2

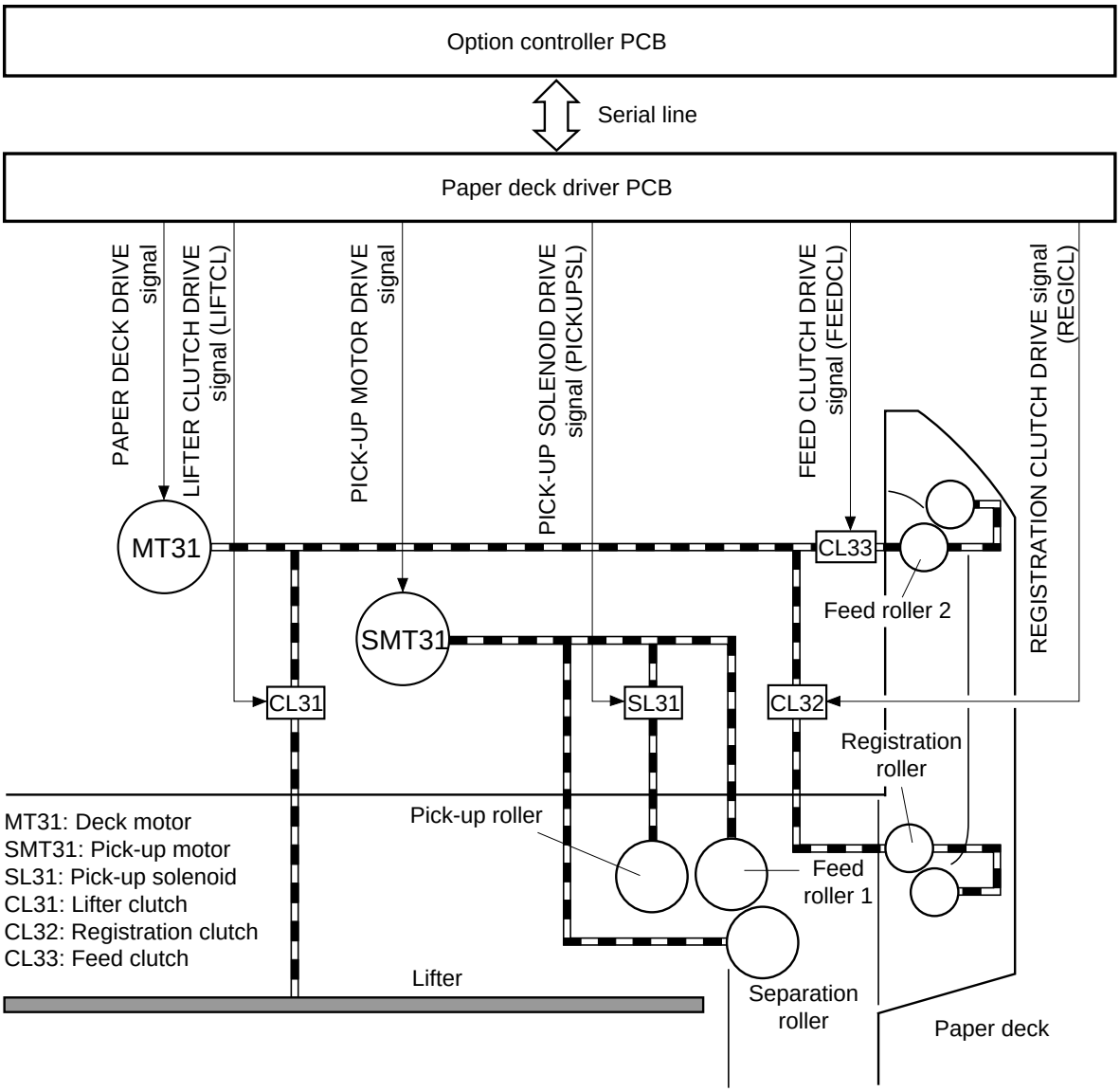

Option controller PCB
Serial line
Paper deck driver PCB
PAPER DECK DRIVE signal
LIFTER CLUTCH DRIVE signal (LIFTCL)
PICK-UP MOTOR DRIVE signal
PICK-UP SOLENOID DRIVE signal (PICKUPSL)
FEED CLUTCH DRIVE signal (FEEDCL)
REGISTRATION CLUTCH DRIVE signal (REGICL)
MT31
SMT31
CL31
SL31
CL32
CL33
Feed roller 2
Registration roller
Pick-up roller
Feed roller 1
Separation roller
Lifter
Paper deck
MT31: Deck motor
SMT31: Pick-up motor
SL31: Pick-up solenoid
CL31: Lifter clutch
CL32: Registration clutch
CL33: Feed clutch

Figure 2-10-5

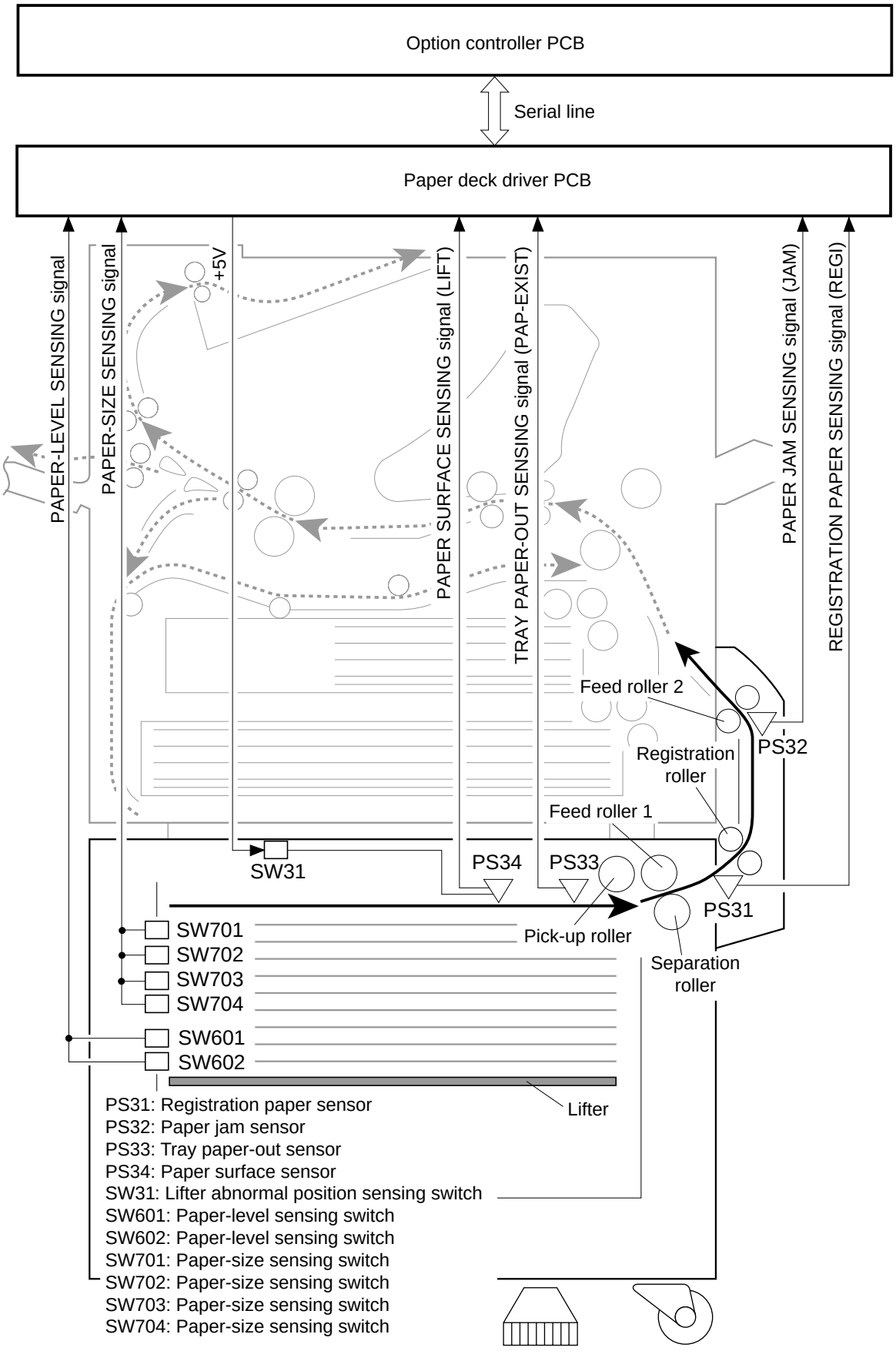

Option controller PCB
Serial line
Paper deck driver PCB
PAPER-LEVEL SENSING signal
PAPER-SIZE SENSING signal
+5V
PAPER SURFACE SENSING signal (LIFT)
TRAY PAPER-OUT SENSING signal (PAP-EXIST)
PAPER JAM SENSING signal (JAM)
REGISTRATION PAPER SENSING signal (REGI)
Feed roller 2
PS32
Registration roller
Feed roller 1
SW31
PS34
PS33
PS31
SW701
SW702
SW703
SW704
Pick-up roller
Separation roller
SW601
SW602
Lifter
PS31: Registration paper sensor
PS32: Paper jam sensor
PS33: Tray paper-out sensor
PS34: Paper surface sensor
SW31: Lifter abnormal position sensing switch
SW601: Paper-level sensing switch
SW602: Paper-level sensing switch
SW701: Paper-size sensing switch
SW702: Paper-size sensing switch
SW703: Paper-size sensing switch
SW704: Paper-size sensing switch

Figure 2-10-6

2. Pick-up/Feeding

The paper deck driver drives the pick-up motor (SMT31) after receiving a pick-up command from the option controller. SMT31 rotates the pick-up, feed, and separation rollers. The paper deck driver simultaneously turns the feed clutch (CL33) and pick-up solenoid (SL31) ON, and rotates the pick-up cam. One sheet of paper is picked-up as the rotating pick-up roller is lowered to the paper surface.

After any excess pages have been separated by the separation roller, one sheet is sent into the feed unit with feed roller 1.

The paper reaches the registration roller after passing through the registration paper sensor (PS31). As the registration roller is not rotating, the paper stops momentarily and the leading edge is looped to straighten out any skew. The registration clutch (CL32) is then turned ON and the paper is sent through into the printer.

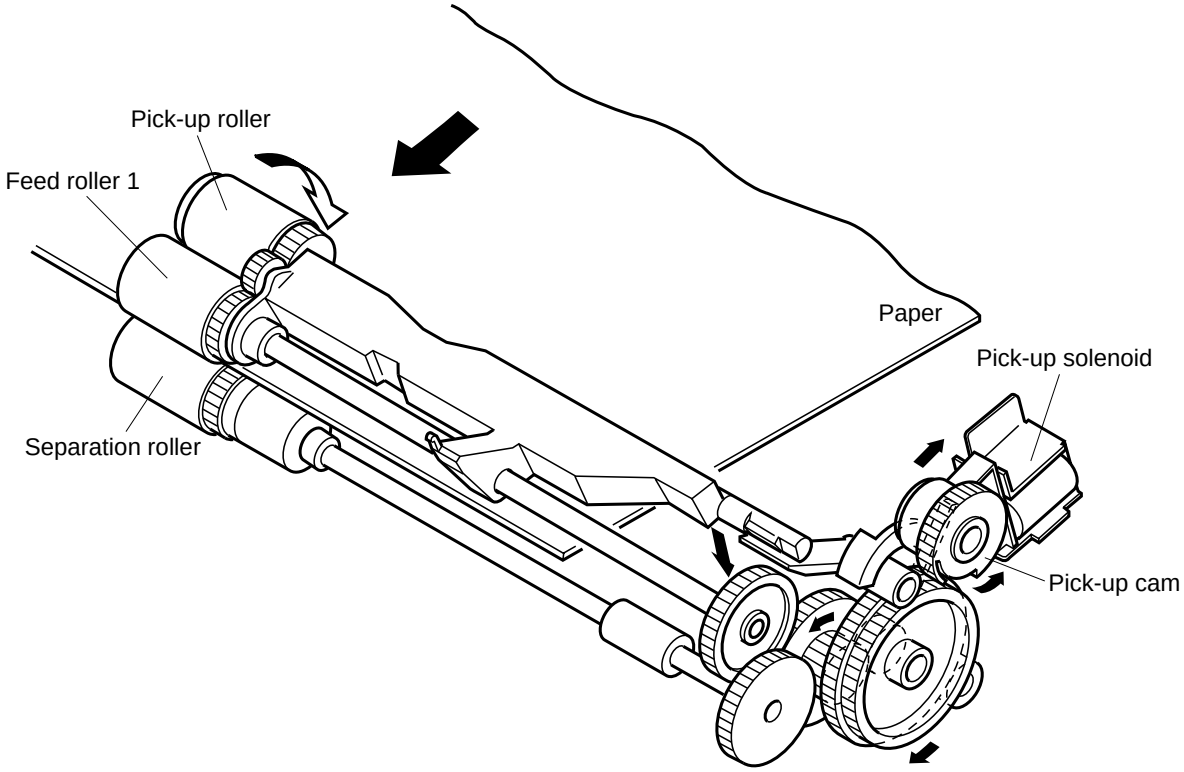


Figure 2-10-7

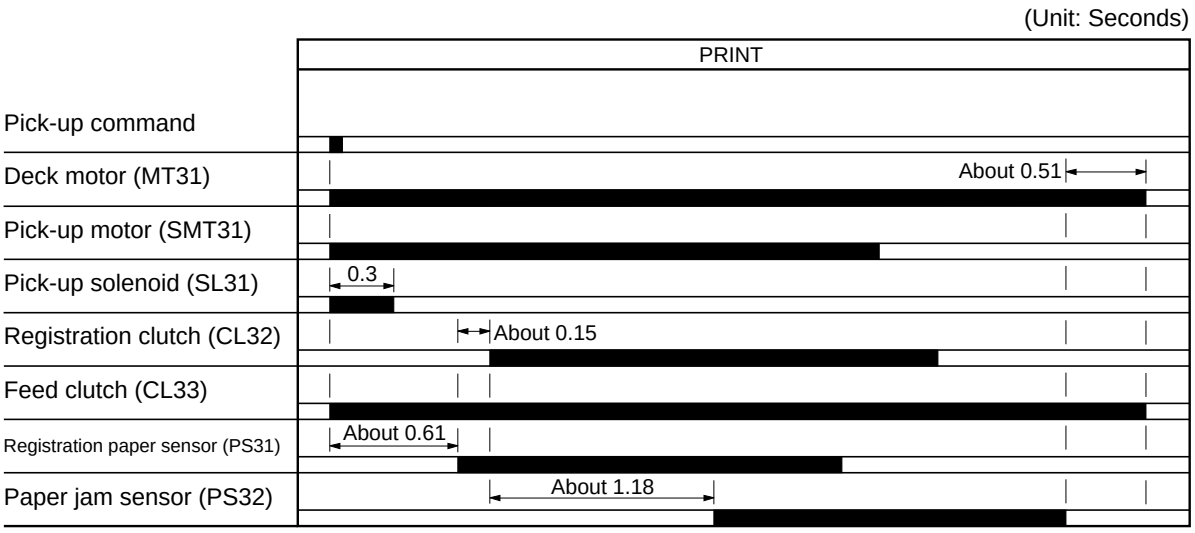

(Unit: Seconds)
PRINT
Pick-up command
Deck motor (MT31)
About 0.51
Pick-up motor (SMT31)
Pick-up solenoid (SL31)
0.3
Registration clutch (CL32)
About 0.15
Feed clutch (CL33)
Registration paper sensor (PS31)
About 0.61
Paper jam sensor (PS32)
About 1.18

Figure 2-10-8

3. Lifter Operation

The lifter in the tray is strung by 4 wires. The wires are wound around the 4 pulleys when the deck motor is driven, to raise the lifter. When the tray is pulled out, the gear on the pulley and the motor gear are disengaged, and the lifter drops under its own weight.

The paper-size sensing switches (SW701 - 704) detect whether the tray is installed in the deck. Once the paper deck driver has detected that the tray is correctly installed, it turns the lifter clutch (CL31) ON. The lifter is raised until the paper surface sensor (PS34) turns "H". When the paper level has dropped and PS34 has turned to "L", the paper deck driver re-activates CL31 and raises the lifter until PS34 returns to "H".

If the lifter has not reached PS34 within the designated time after starting to rise, the paper deck driver assesses a lifter failure and notifies the option controller. When paper is loaded in the tray as shown in Figure 2-10-10, there is a possibility that the wires will break from the excess strain as the paper deck driver will try to raise the lifter until the paper is detected by PS32. To prevent this from happening, the lifter abnormal position sensing switch (SW31) has been installed. When SW31 goes ON due to detecting paper, the lifter is stopped in the same way as when PS34 turns to "H". A lifter failure is notified by the paper deck driver to the option controller.

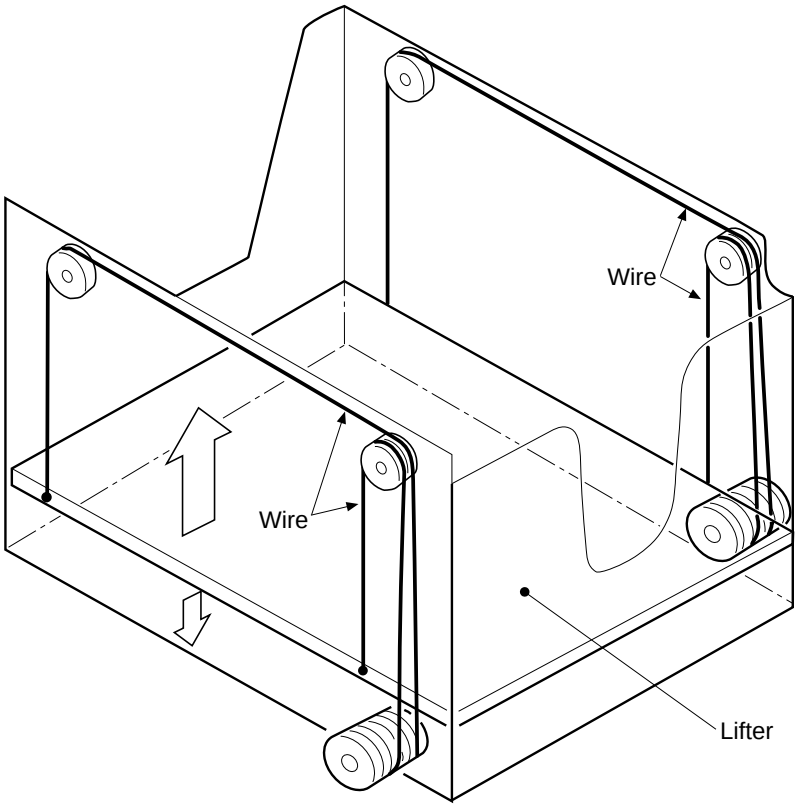
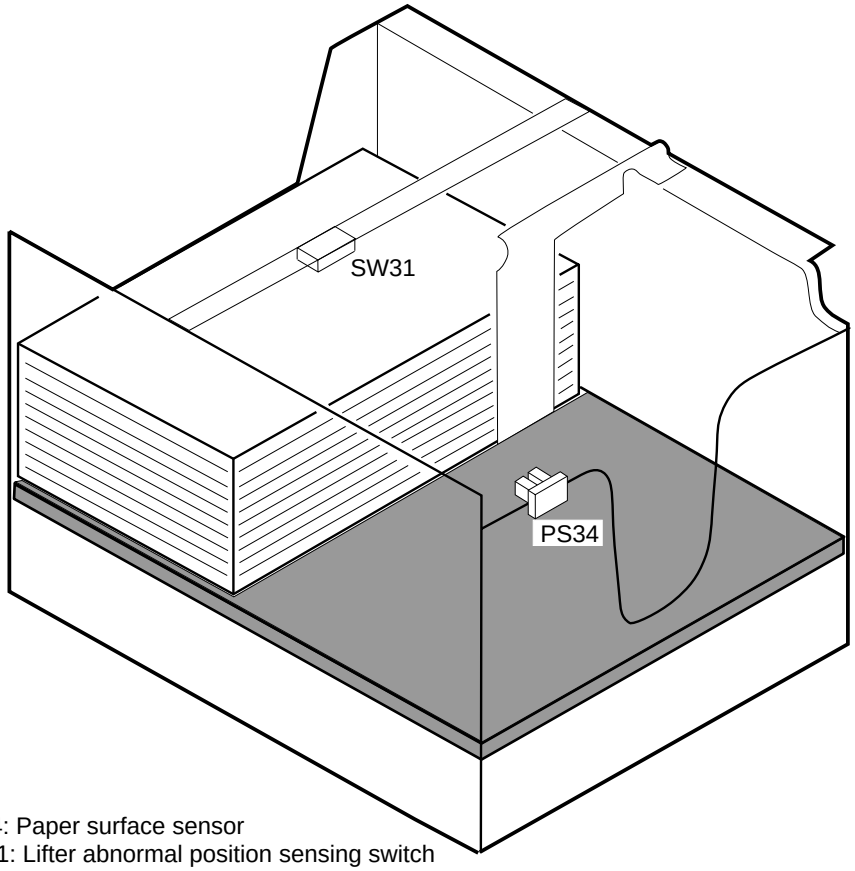


Figure 2-10-9



PS34: Paper surface sensor
SW31: Lifter abnormal position sensing switch

Figure 2-10-10

F. Paper Jam Detection

The following paper sensors are installed to detect the presence of paper and ensure that the paper is fed correctly.

- Registration paper sensor (PS31)
- Paper jam sensor (PS32)

The CPU determines whether or not a paper jam has occurred by monitoring the paper at each of the sensors according to the pre-set 'check timing' in the memory. When the CPU assesses that a jam has occurred, the feed operation to the printer is stopped, and notification of the jam is sent to the option controller.

1. Pick-up delay jam

If the paper has not reached the registration sensor (PS31) in the designated time after receiving the pick-up command, the CPU assesses a pick-up delay jam.

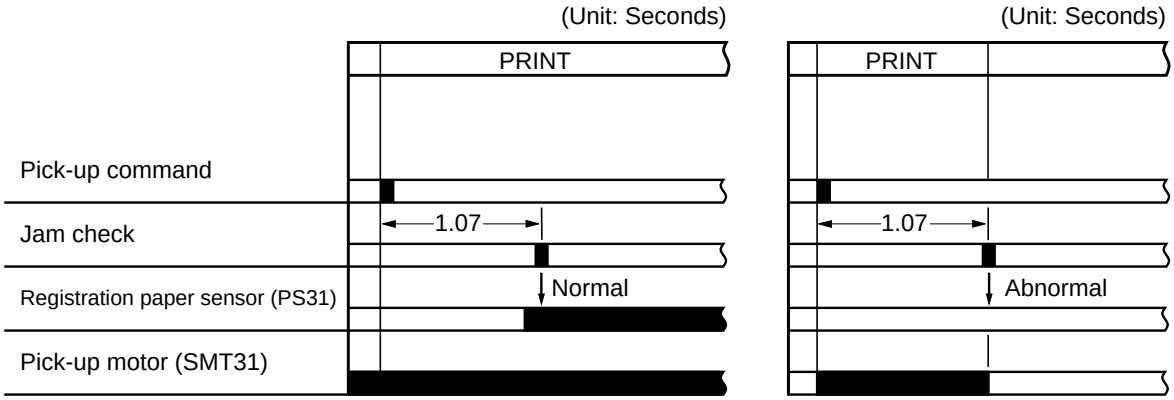


Figure 2-10-11

2. Feed unit delay jam

If the paper has not reached the paper jam sensor (PS32) in the designated time after the registration clutch (CL32) is driven, the CPU assesses a feed unit delay jam.

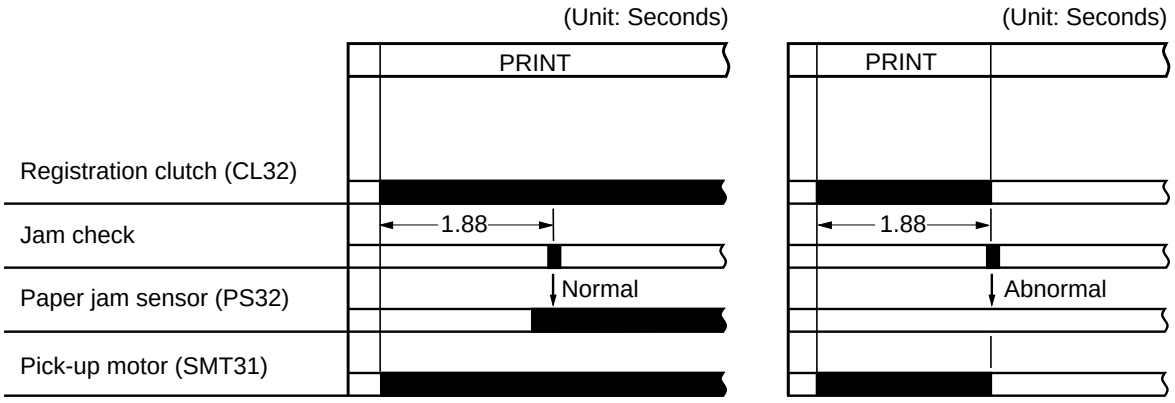
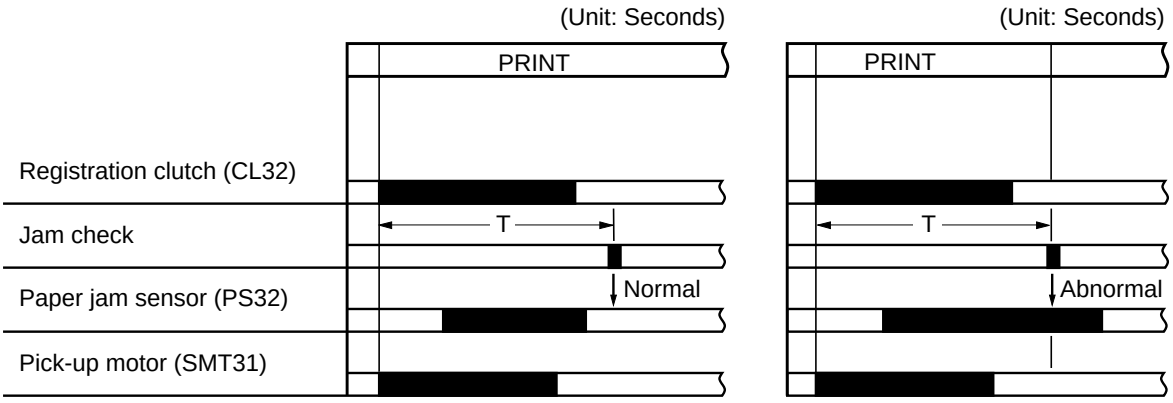


Figure 2-10-12

3. Feed unit stationary jam

If the paper has not passed the paper jam sensor (PS32) in the designated time after the registration clutch (CL32) is driven, the CPU assesses a feed unit stationary jam.



T: 0.63 second (A4), 0.84 second (Ledger)

Figure 2-10-13

G. Power Supply

1. Outline

This machine's power supply utilizes the remote switch method.
When the printer is turned ON, the printer outputs commands to the option controller through the video controller. The option controller outputs a POWER ON signal (PWRON-IN) to the power supply through the paper deck driver to turn the power ON. When PWRON-IN signal turns "H", the power supply circuit supplies the paper deck driver with +24V and +5V.

+24V is used to drive the deck motor, pick-up motor, clutch and solenoid etc., and +5V is for the sensors and ICs etc. on the paper deck driver PCB.
This is outlined in the block diagram below.

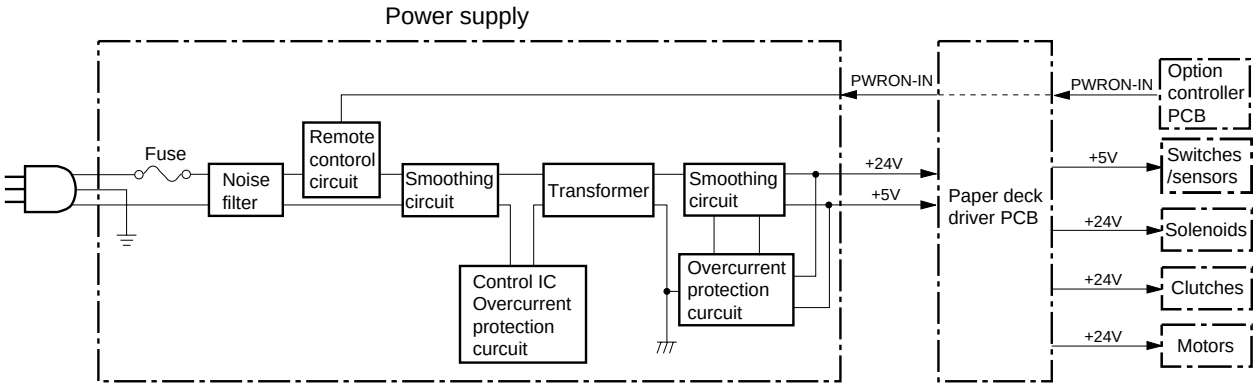


Figure 2-10-14

2. Protection System

On the various +24V and +5V power supply circuits is an overcurrent protection system which automatically cuts the output voltage protecting the circuits from being damaged in the event that overcurrent should flow due to some form of trouble or from one of the loads shorting. Therefore, when the overcurrent protection circuit is activated and DC voltage is not being output from the power supply circuit, after turning the printer power OFF and rectifying the problem, turn the power ON again.

CHAPTER 3

THE MECHANICAL SYSTEM

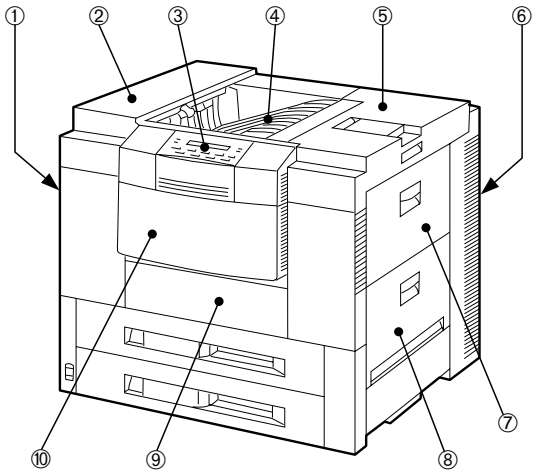
This chapter describes mechanical operation as well as disassembly and reassembly procedures of the printer. Note the following precautions during disassembly or reassembly.

1. When you remove the EP cartridge, cover the cartridge with a cloth or put it in a dark place to prevent light from affecting the drum inside the cartridge.
2. Remove the cartridge from the printer before disassembling or transporting the printer.
3. ⚠**CAUTION: Before servicing the printer, disconnect its power cord from the electrical outlet.**
4. Assembly is the reverse of disassembly unless otherwise specified.
5. Note the lengths, diameters, and locations of screws as you remove them. When reassembling the printer, be sure to use them in their original locations.
6. Do not operate the printer with any parts removed.
7. Discharge electrical static from your body by touching the metal frame of the printer prior to installing the PCB in order to avoid causing damage by the difference in static charge at that time.

I. EXTERNALS 3-1
II. DRIVE SYSTEM 3-10
III. PAPER TRANSPORT SYSTEM 3-12
IV. EXPOSURE SYSTEM 3-21
V. ELECTROSTATIC IMAGING/ DEVELOPING/CLEANING SYSTEM 3-22
VI. FIXING SYSTEM 3-24
VII. ELECTRONIC COMPONENTS 3-32
VIII. ENVELOPE FEEDER 3-39
IX. DUPLEXING UNIT 3-45
X. OPTION CONTROLLER 3-52
XI. PAPER DECK 3-53

I. EXTERNALS

A. External Covers



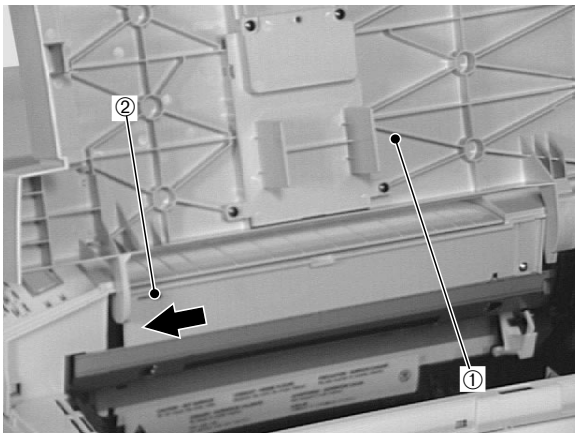
① Delivery cover unit
② Upper cover unit
③ Operation panel unit
④ Face-down tray
⑤ Upper cover
⑥ Rear cover
⑦ Multi-purpose tray
⑧ Pick-up unit door
⑨ Duplexing unit door
⑩ Front cover

Figure 3-1-1

When cleaning, checking or repairing inside the printer, remove the necessary covers by following the procedures below.

1. Face-down tray

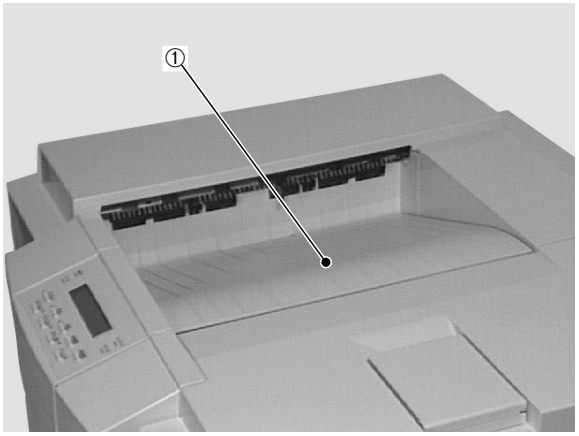
1) Open the upper cover.
2) Move the lock lever in the direction of the arrow.



① Upper cover ② Lock lever

Figure 3-1-2

3) Close the upper cover and remove the face-down tray.

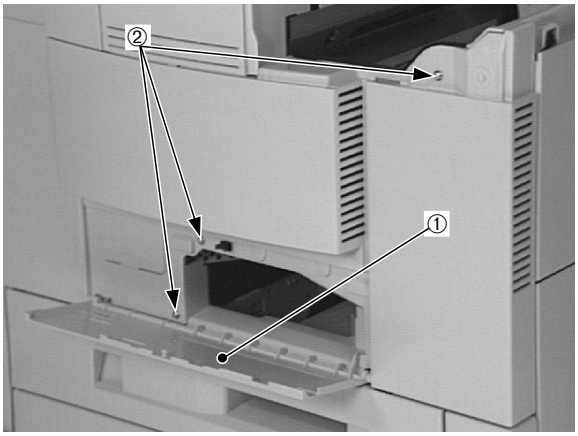


① Face-down tray

Figure 3-1-3

2. Front cover

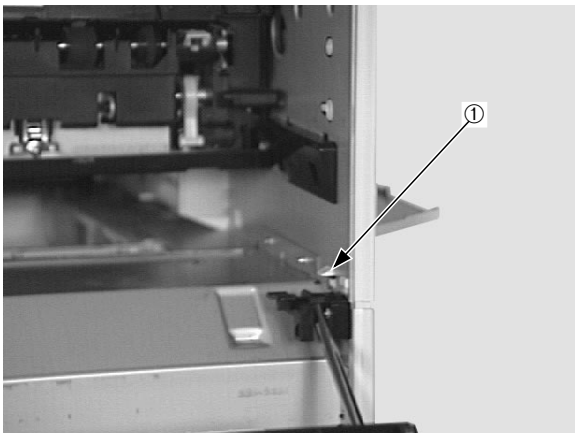
1) Open the upper cover.
2) Open the duplexing unit door.
3) Remove the 3 screws.



① Duplexing unit door
② Screws

Figure 3-1-4

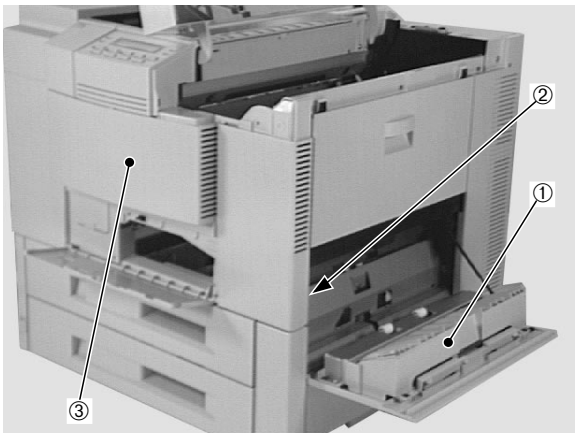
4) Open the delivery cover unit, and unclip the claw.



① Claw

Figure 3-1-5

5) Open the pick-up unit door, and disconnect the claw and remove the front cover.

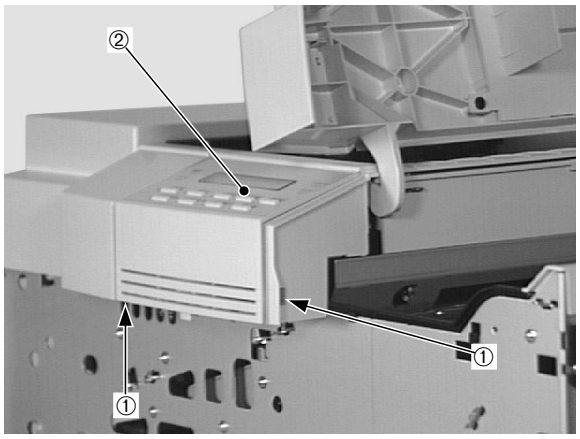


① Pick-up unit door
② Claw
③ Front cover

Figure 3-1-6

3. Upper cover unit

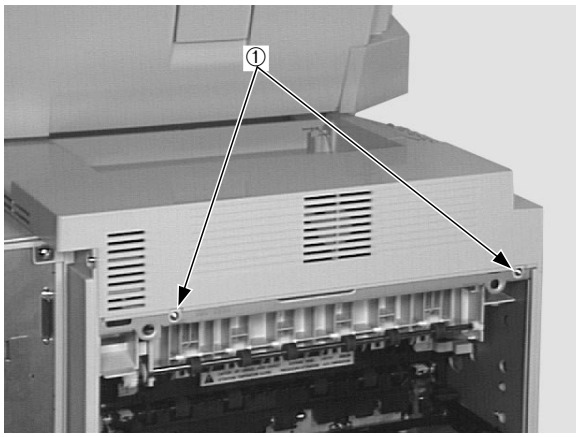
1) Remove the face-down tray.
2) Remove the front cover.
3) Remove the 2 claws, and then the operation panel unit.
4) Disconnect the connector from the operation panel unit.



① Claws
② Operation panel unit

Figure 3-1-7

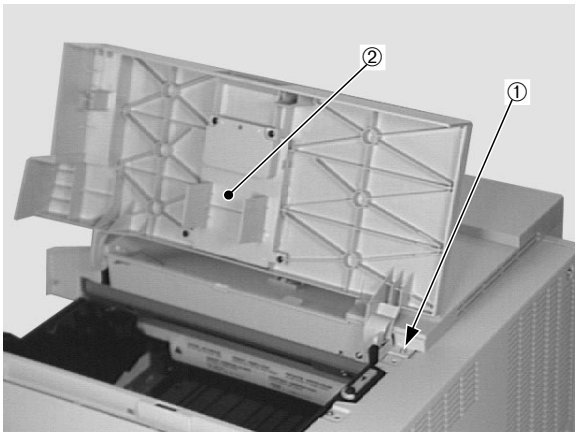
5) Remove the 2 screws.



① Screws

Figure 3-1-8

6) Remove the screw, and then the upper cover unit.

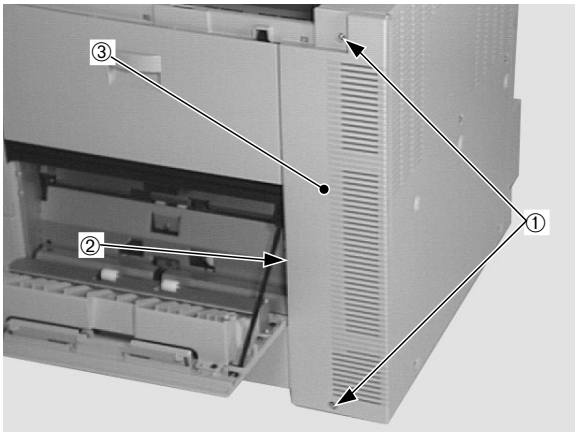


① Screw ② Upper cover unit

Figure 3-1-9

4. Rear cover

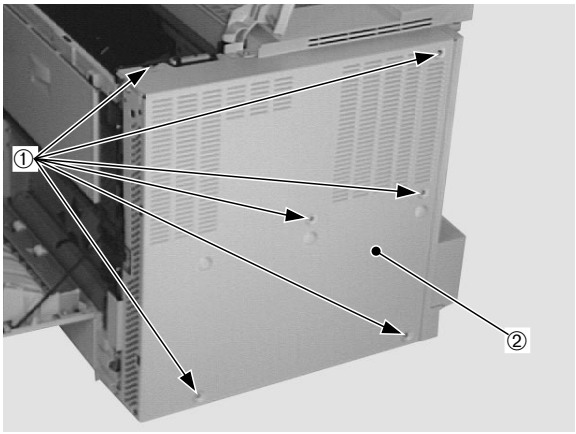
1) Open the upper cover.
2) Open the pick-up unit door.
3) Remove the 2 screws, the claw, and the right rear cover.



① Screws ② Claw
③ Right rear cover

Figure 3-1-10

4) Remove the 6 screws and take off the rear cover.

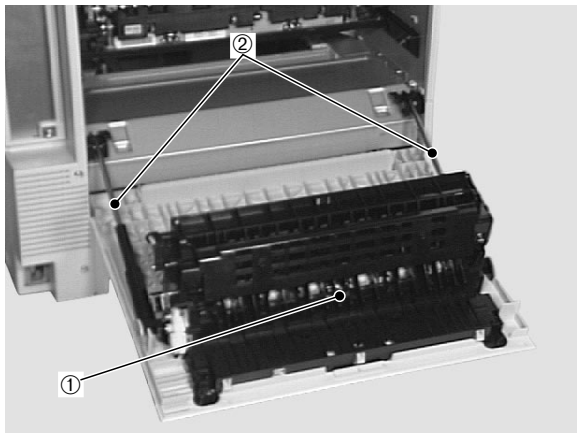


① Screws ② Rear cover

Figure 3-1-11

5. Delivery cover unit

1) Open the delivery cover unit.
2) Remove the 2 rods holding the delivery cover unit to the printer.
3) Slightly lift the delivery cover unit, pull out the right side first, then the left.

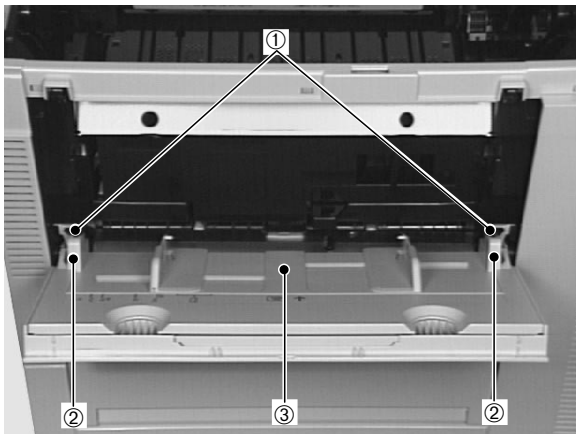


① Rods ② Delivery cover unit

Figure 3-1-12

6. Multi-purpose tray

1) Open the multi-purpose tray.
2) Remove the 2 stoppers.
3) Undo the 2 claws holding the multi-purpose tray unit, and pull the tray out toward you.

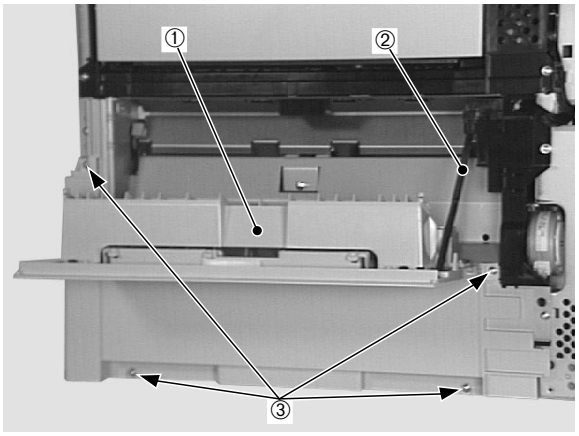


① Stoppers ② Claws
③ Multi-purpose tray

Figure 3-1-13

7. Right cover unit

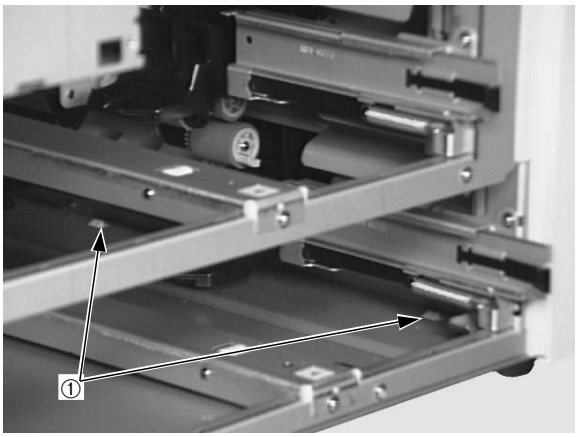
1) Remove the front cover.
2) Remove the right rear cover.
3) Remove the hinge from the right cover unit, and then the 4 screws.



① Right cover unit ② Hinge
③ Screws

Figure 3-1-14

4) Remove the cassettes.
5) Remove the 2 claws, and then the right cover unit.

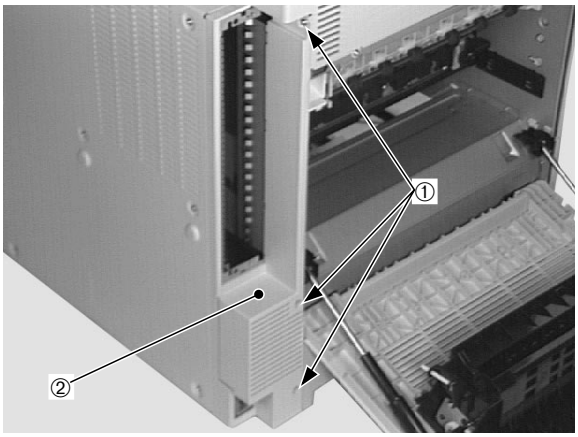


① Claws

Figure 3-1-15

8. Left rear cover

1) Open the delivery cover.
2) Remove the video controller PCB unit following the procedure on page 3-32.
3) Remove the 3 screws and the left rear cover.



① Screws ② Left rear cover

Figure 3-1-16

B. Fans

1. Summary

There are 4 fan motors installed to circulate air within the printer and prevent the internal temperature from rising.

- Fixing unit/scanner unit fan (FM1):
  Blows air from the fixing unit and the scanner unit vicinity.
- Power supply fan (FM2):
  Blows air from the power supply.
- Electrical unit fan (FM3):
  Intake fan for the video controller unit.
- Fixing unit fan (FM4):
  Blows air from the fixing unit vicinity.

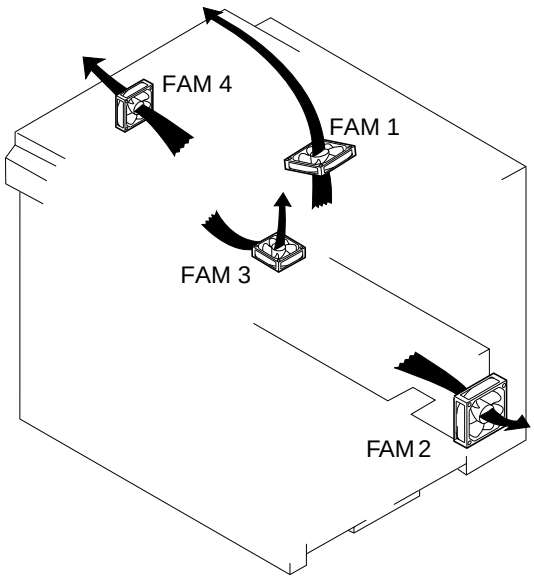
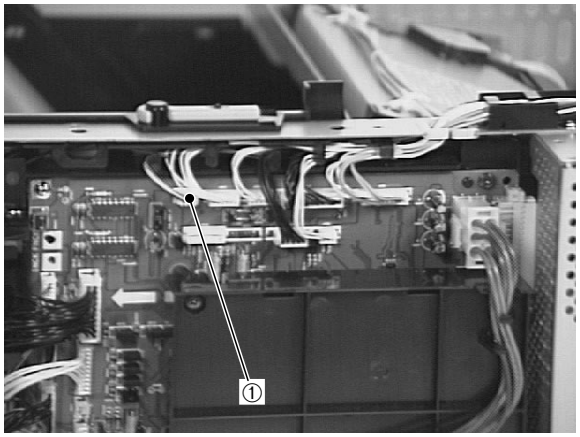


Figure 3-1-17

2. Removal from the printer

a. Fixing unit/scanner unit fan (FM1)

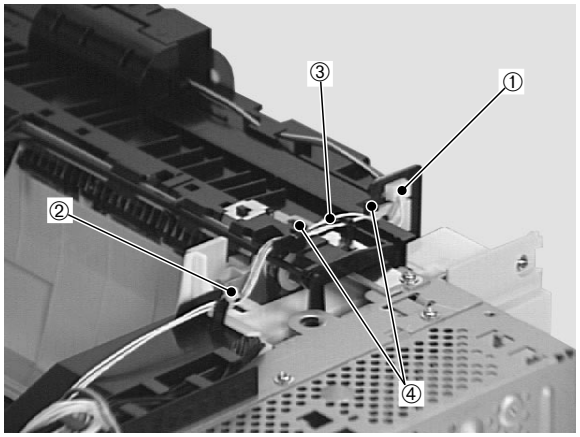
1) Remove the right rear and rear covers.
2) Remove the upper cover unit.
3) Disconnect the connector.



① Connector

Figure 3-1-18

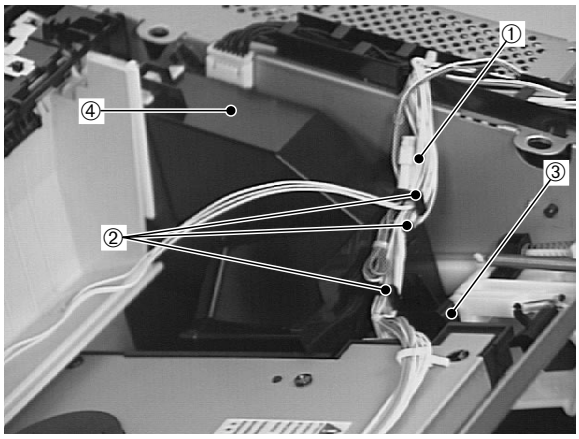
4) Disconnect the connector.
5) Remove the cable tie, and then remove the cable from the cable guide.



① Connector ② Cable tie
③ Cable ④ Cable guide

Figure 3-1-19

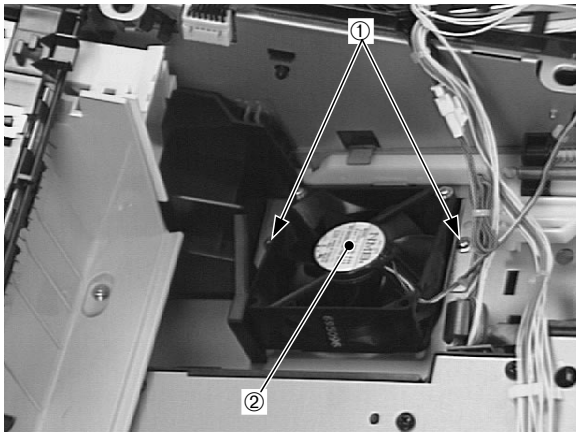
6) Remove the cable from the guide.
7) Unhook the claw, then remove the fan duct.



① Cables ② Cable guide
③ Claw ④ Fan duct

Figure 3-1-20

8) Remove the 2 screws, and then the fixing unit/scanner unit fan.

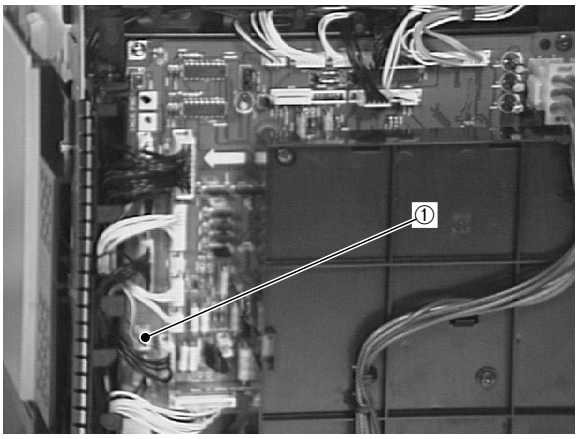


① Screws
② Fixing unit/scanner unit fan

Figure 3-1-21

b. Power supply fan (FM2)

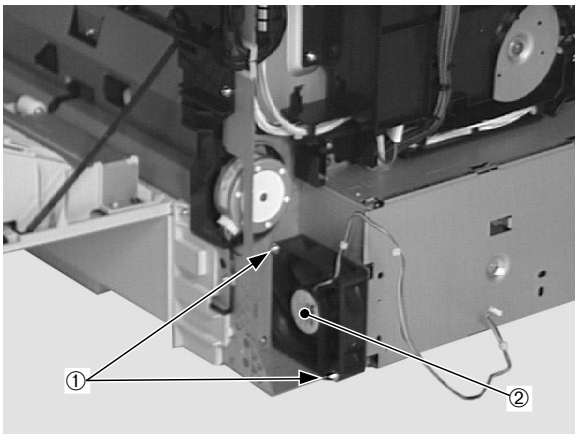
1) Remove the right rear and rear covers.
2) Disconnect the connector.



① Connector

Figure 3-1-22

3) Remove the 2 screws, and then the power supply fan.

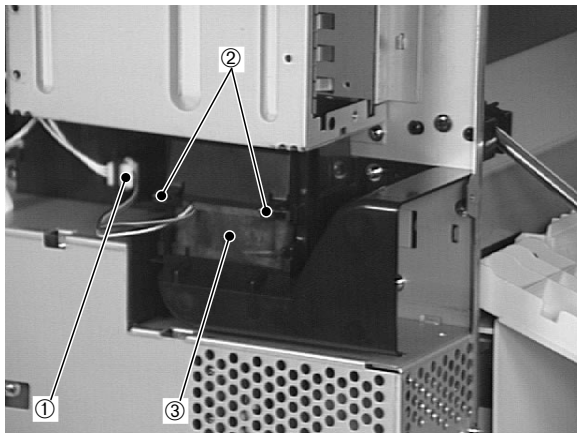


① Screws ② Power supply fan

Figure 3-1-23

c. Electrical unit fan (FM3)

1) Remove the right rear and rear covers.
2) Remove the left rear cover.
3) Undo the connector.
4) Pinch the 2 claws holding the electrical unit fan and pull out the fan.

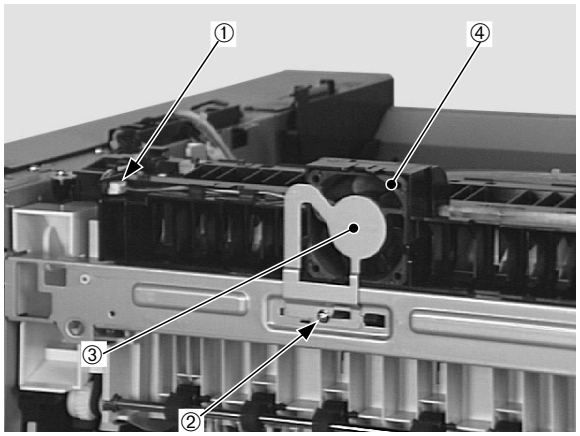


① Connector ② Claws
③ Electrical unit fan

Figure 3-1-24

d. Fixing unit fan (FM4)

1) Remove the upper cover unit.
2) Undo the connector.
3) Remove the screw, and then the fan grounding plate. Disconnect the 4 claws to remove the fixing unit fan.



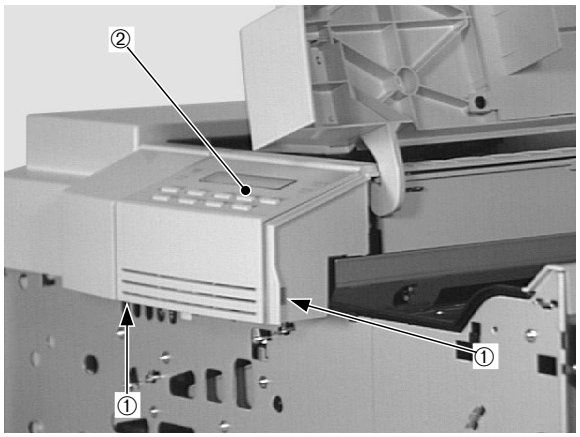
① Connector
② Screw
③ Fan grounding plate
④ Fixing unit fan

Figure 3-1-25

C. Operation Panel Unit

1. Removal from the printer

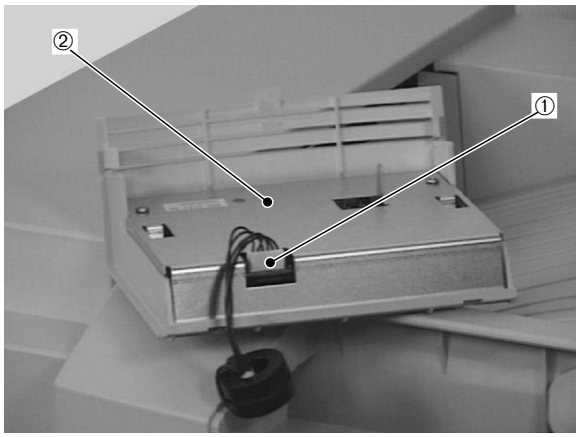
1) Open the upper cover unit.
2) Remove the front cover.
3) Remove the 2 claws, and then the operation panel unit.



① Claws
② Operation panel unit

Figure 3-1-26

4) Remove the connector, and then the operation panel unit.



① Connector
② Operation panel unit

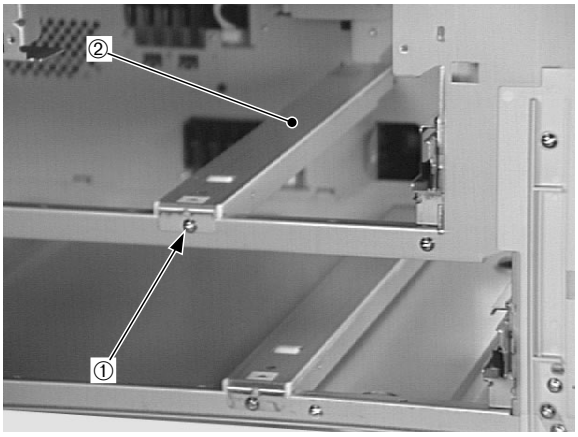
Figure 3-1-27

II. DRIVE SYSTEM

A. Drive Unit

1. Removal from the printer

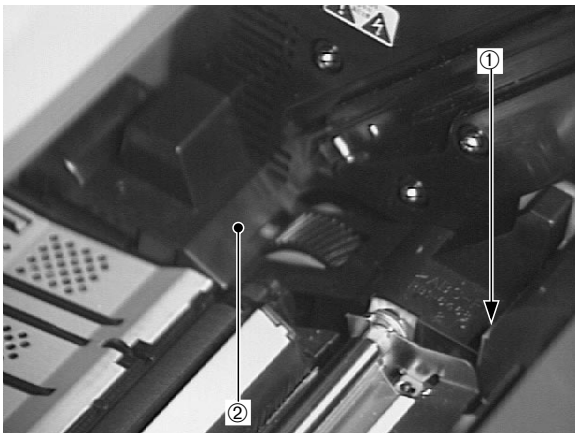
1) Remove the pick-up unit following steps 1-7 on Page 3-12.
2) Remove the screw, and then the cassette stay.



① Screw ② Cassette stay

Figure 3-2-1

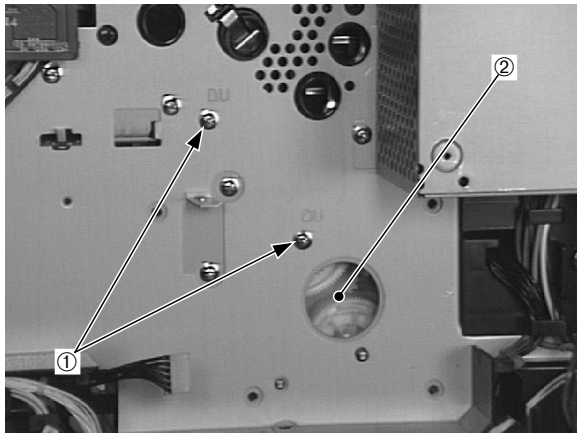
3) Disconnect the claw, and then the clutch cover.



① Claw ② Clutch cover

Figure 3-2-2

4) Remove the high-voltage power supply unit following steps 1-2 on Page 3-36.
5) Undo the connector, remove the 4 screws and then the main motor.
6) Remove the 2 screws and the drive unit.



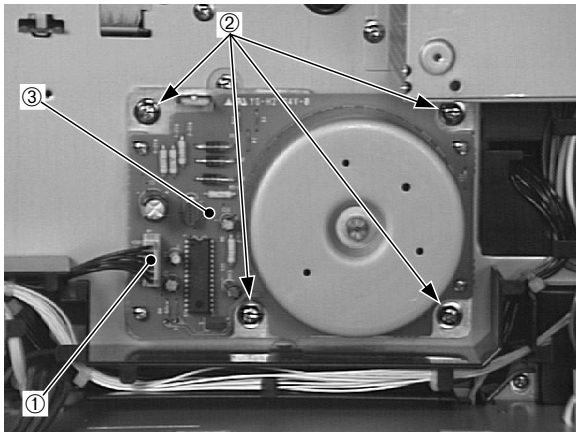
① Screws ② Drive unit

Figure 3-2-3

B. Main Motor

1. Removal from the printer

1) Remove the high-voltage power supply unit following steps 1-2 on Page 3-36.
2) Undo the connector, remove the 4 screws and then the main motor.



① Connector ② Screws
③ Main motor

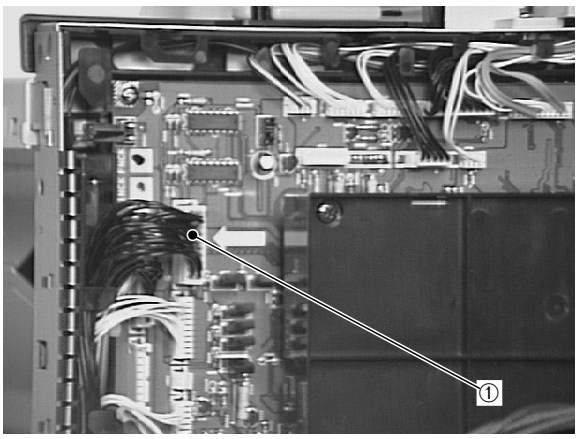
Figure 3-2-4

III. PAPER TRANSPORT SYSTEM

A. Pick-up Unit

1. Removal from the printer

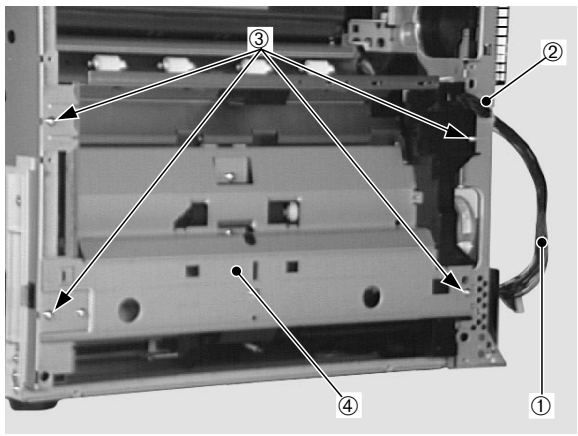
1) Pull out the upper and lower cassettes.
2) Perform steps 1-6 on Page 3-17 to remove the manual feed pick-up unit.
3) Remove the right cover.
4) Undo the connector.



① Connector

Figure 3-3-1

5) Perform steps 1-2 on Page 3-20 to remove the pick-up, feed and separation rollers.
6) Remove the cable from the guide.
7) Remove the 4 screws, and take out the pick-up unit.



① Cable
② Cable guide
③ Screws
④ Pick-up unit

Figure 3-3-2

Note:
1. While replacing parts in the pick-up unit, to prevent grease from getting on the pick-up, feed and separation rollers, be sure to remove them before working on the unit. Take care not to get grease on the paper feed guide.
2. Be sure to grease the gears shown in figure 3-3-3 when exchanging, to prevent noise.
The type of grease (do not use grease other than the specified type) and the method of application is explained below:
Grease: Permalub SHV-2
Application method: Apply a small amount of grease to 3 or more continuous cogs on the gear.

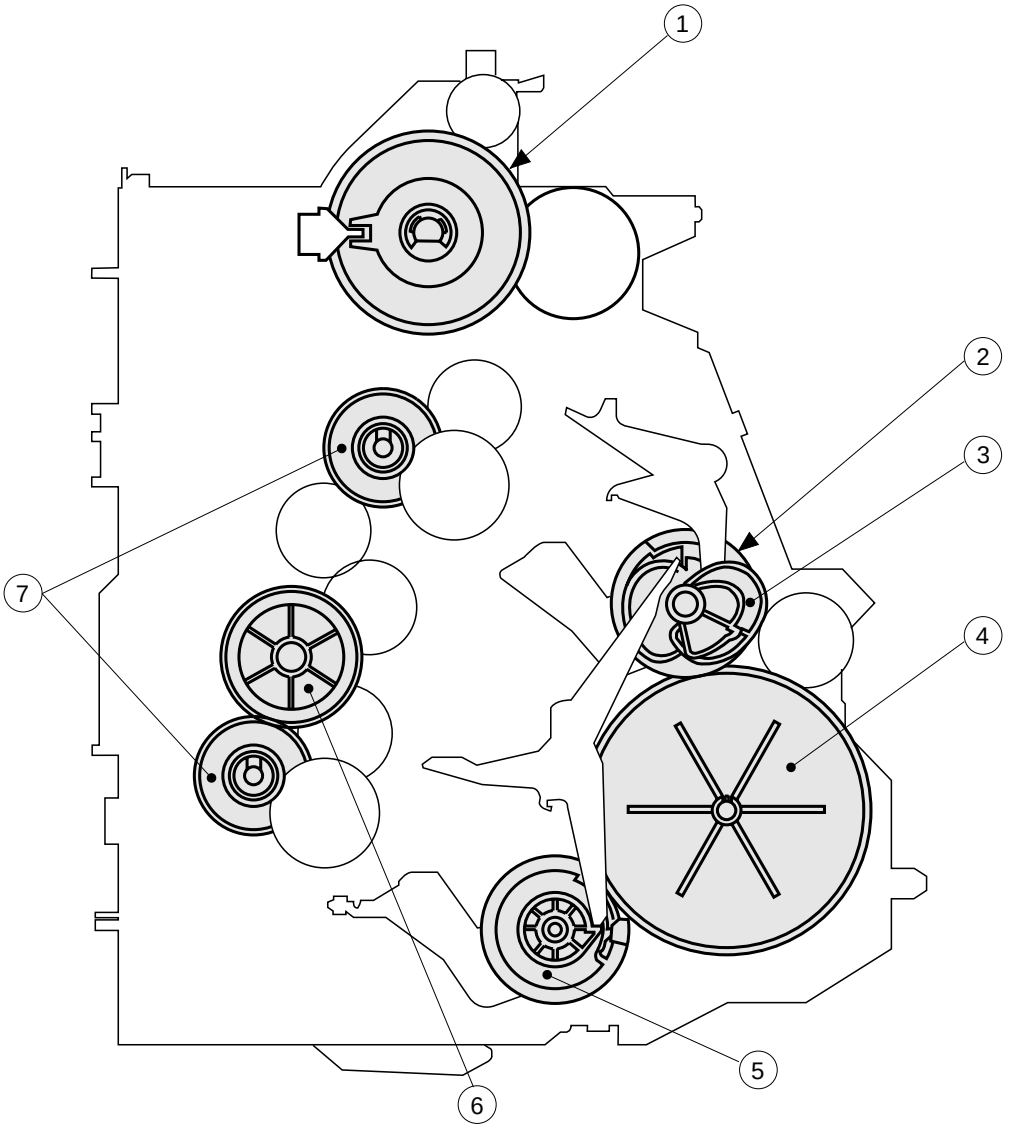


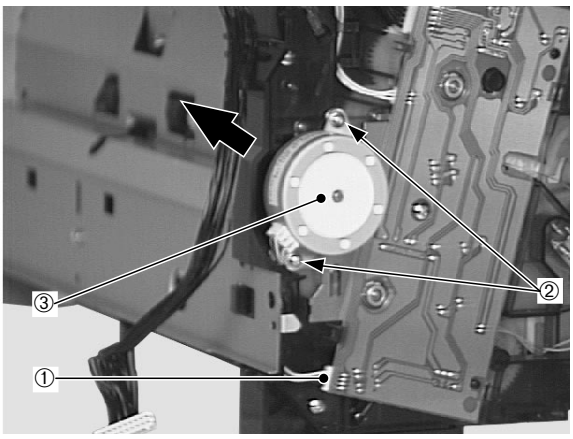
Figure 3-3-3

① 57T gear
② Upper lift-up cam
③ Pick-up cam
④ 100T gear
⑤ Lower lift-up cam
⑥ 31T/47T gear
⑦ 20T/41T gear

2. Disassembly/reassembly

a. Pick-up motor

1) Undo the connector.
2) Remove the 2 screws, and slide the pick-up motor out in the direction of the arrow.

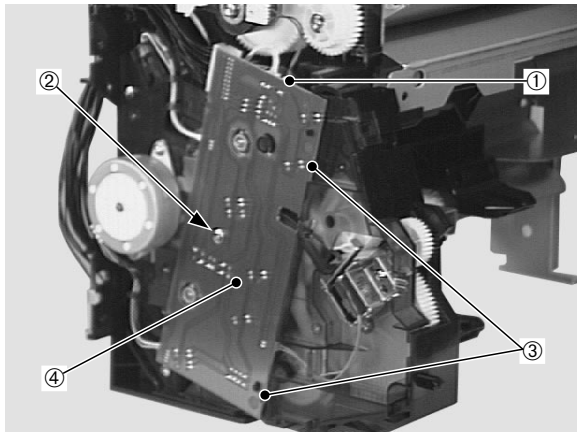


① Connector ② Screws
③ Pick-up motor

Figure 3-3-4

b. Feed clutch

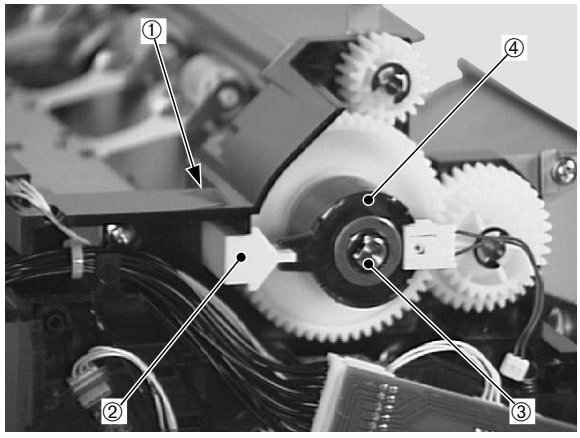
1) Disconnect the connector.
2) Remove the screw, and disconnect the 2 claws to remove the pick-up PCB.



① Connector ② Screws
③ Claws ④ Pick-up PCB

Figure 3-3-5

3) Undo the claw and remove the clutch fixing plate.
4) Remove the E-ring, and then the feed clutch.

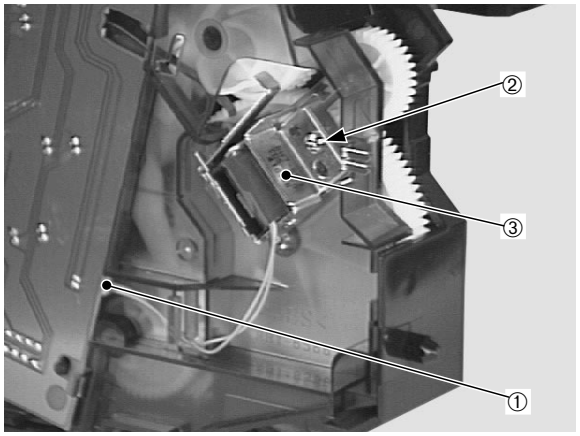


① Claw ② Clutch fixing plate
③ E-ring ④ Feed clutch

Figure 3-3-6

c. Cassette pick-up solenoid

1) Disconnect the connector.
2) Remove the screw and take out the cassette pick-up solenoid.



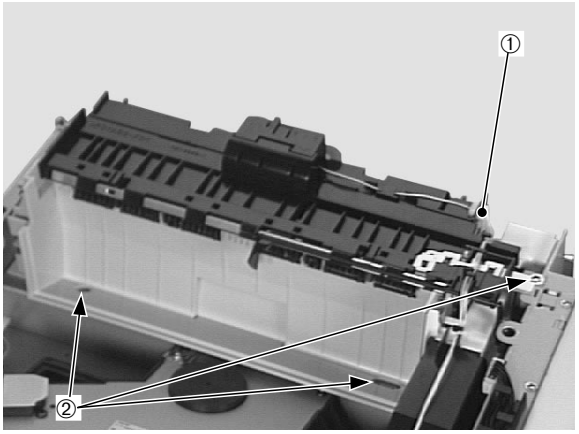
① Connector
② Screw
③ Cassette pick-up solenoid

Figure 3-3-7

B. Delivery Unit

1. Removal from the printer

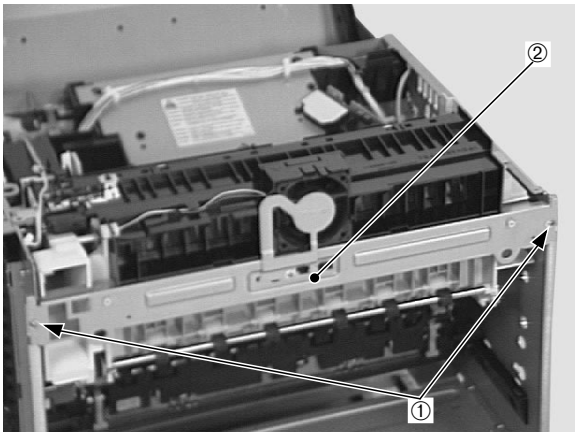
1) Remove the upper cover unit.
2) Remove the front cover.
3) Remove the right rear and rear covers.
4) Open the delivery cover unit.
5) Remove the left rear cover.
6) Disconnect the connector and remove the 3 screws.



① Screws ② Connector

Figure 3-3-8

7) Remove the 2 screws.
8) Slightly lift the delivery unit up then pull it out toward you.



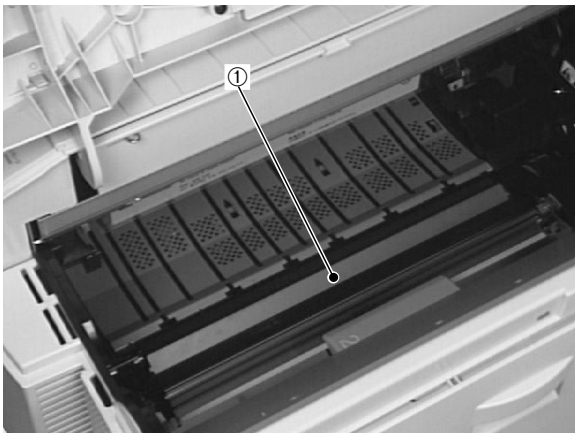
① Screws ② Delivery unit

Figure 3-3-9

C. Registration Roller Unit

1. Removal from the printer

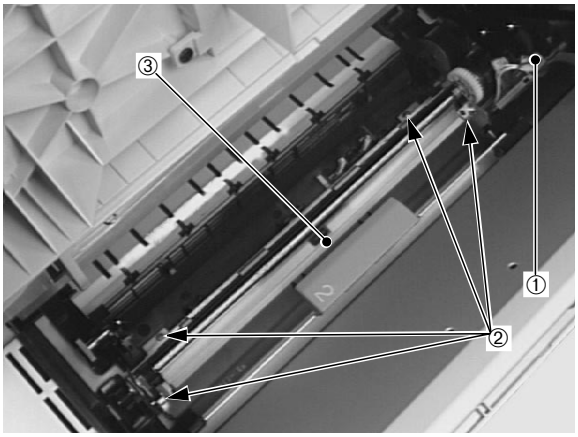
1) Open the upper cover.
2) Remove the clutch cover.
3) Open the transfer charging roller guide.



① Transfer charging roller guide

Figure 3-3-10

4) Undo the connector.
5) Remove the 4 screws and take out the registration roller unit.



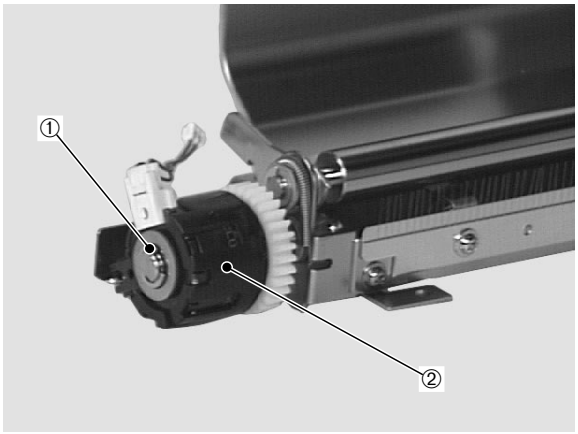
① Connector
② Screws
③ Registration roller unit

Figure 3-3-11

2. Disassembly/reassembly

a. Registration clutch

1) Remove the E-ring and the registration clutch.

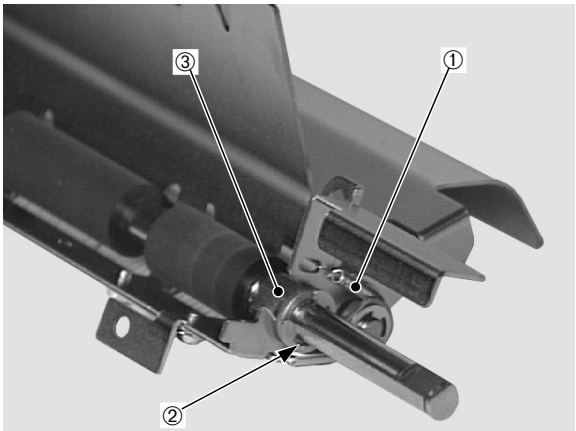


① E-ring ② Registration clutch

Figure 3-3-12

b. Registration lower roller

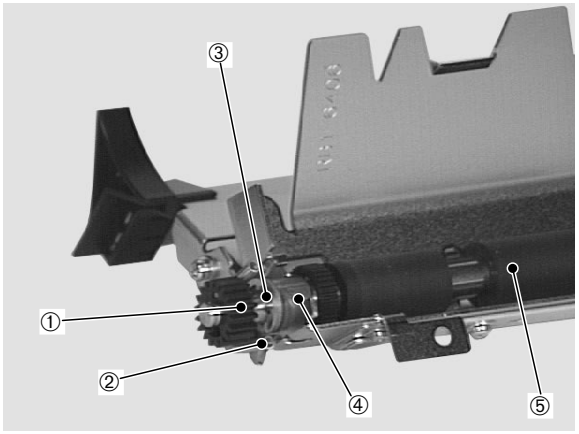
1) Remove the registration clutch.
2) Remove the spring, the E-ring and the bushing.



① Spring ② E-ring
③ Bushing

Figure 3-3-13

3) Remove the gear, the spring, the E-ring, the bushing, and then the registration lower roller.



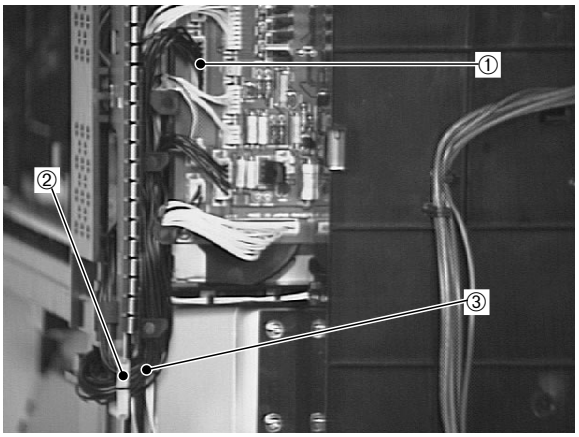
① Gear
② Spring
③ E-ring
④ Bushing
⑤ Registration lower roller

Figure 3-3-14

D. Manual Feed Pick-up Unit

1. Removal from the printer

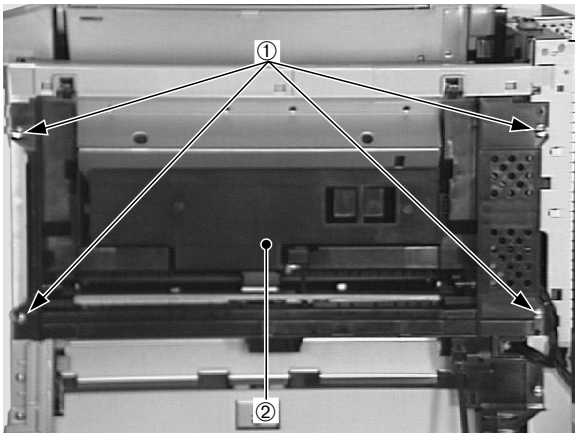
1) Remove the front cover.
2) Remove the rear cover.
3) Remove the multi-purpose tray.
4) Open the pick-up unit door.
5) Disconnect the connector, and then remove the cable from the cable guide.



① Connector ② Cable guide
③ Cable

Figure 3-3-15

6) Remove the 4 screws, and then the manual feed pick-up unit.



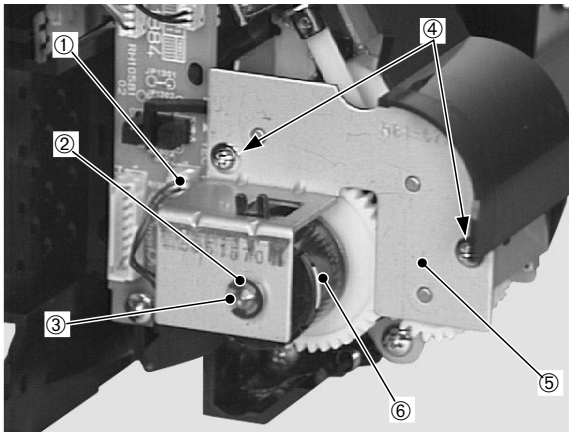
① Screws
② Manual feed pick-up unit

Figure 3-3-16

2. Disassembly/reassembly

a. Manual feed pick-up clutch

1) Disconnect the connector.
2) Remove the E-ring and the bushing.
3) Remove the 2 screws, then take out the drive side plate and the manual feed pick-up clutch.

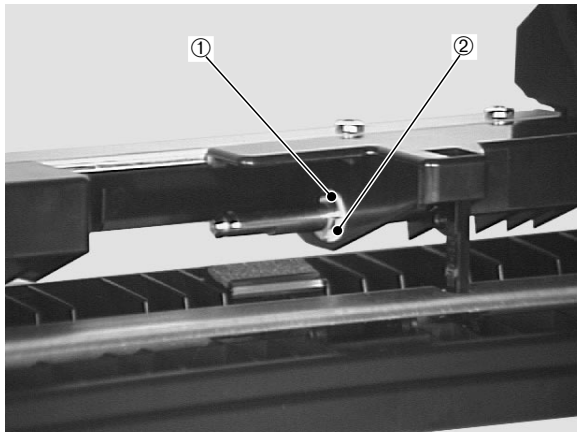


① Connector
② E-ring
③ Bushing
④ Screws
⑤ Drive side plate
⑥ Manual feed pick-up clutch

Figure 3-3-17

b. Lifting plate solenoid

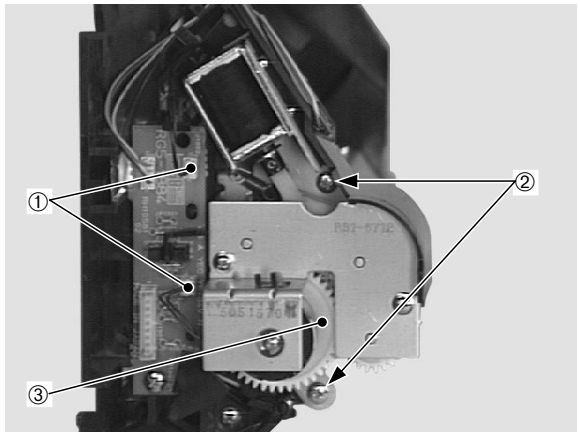
1) Perform steps 1-3 on Page 3-19 to remove the manual feeding pick-up roller.
2) Remove the E-ring and the bushing.



① E-ring ② Bushing

Figure 3-3-18

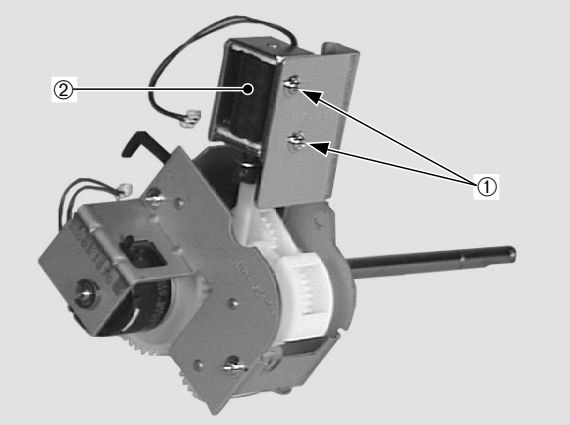
3) Disconnect the connector.
4) Remove the 2 screws, and then the manual feed drive unit.



① Connector
② Screws
③ Manual feed drive unit

Figure 3-3-19

5) Remove the 2 screws, and then the lifting plate solenoid.



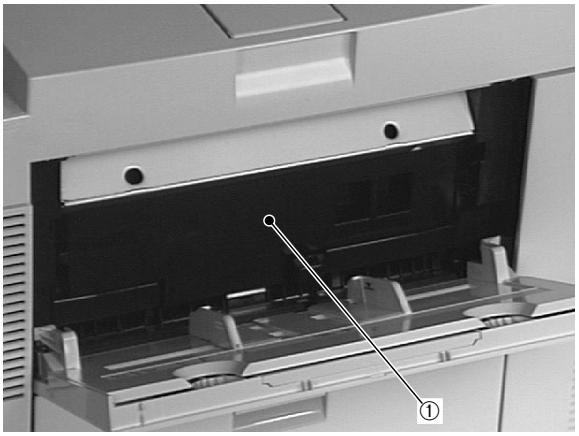
① Screws
② Lifting plate solenoid

Figure 3-3-20

E. Manual Feeding Pick-up Roller

1. Removal from the printer

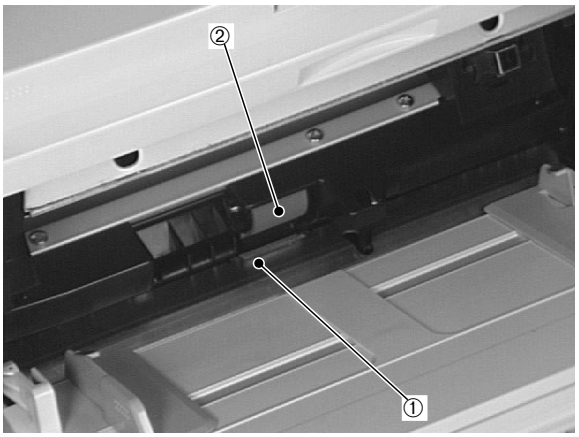
1) Open the multi-purpose tray.
2) Remove the cover.



① Cover

Figure 3-3-21

3) While pressing the lifting plate, grasp the manual feeding pick-up roller knob, and pull out the roller.



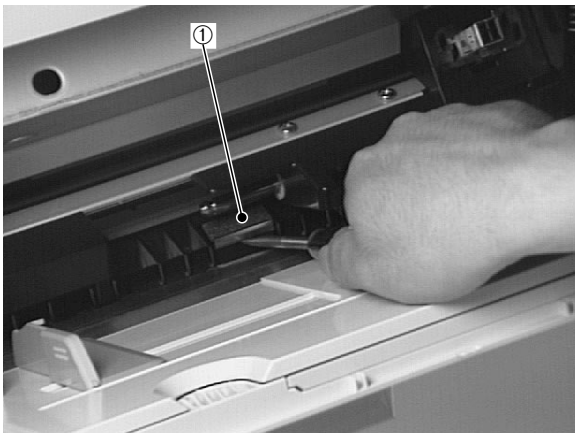
① Lifting plate
② Manual feeding pick-up roller

Figure 3-3-22

F. Separation Pad

1. Removal from the printer

1) Open the multi-purpose tray.
2) Remove the cover.
3) Remove the manual feeding pick-up roller.
4) Use a flat-bladed screwdriver to remove the separation pad.



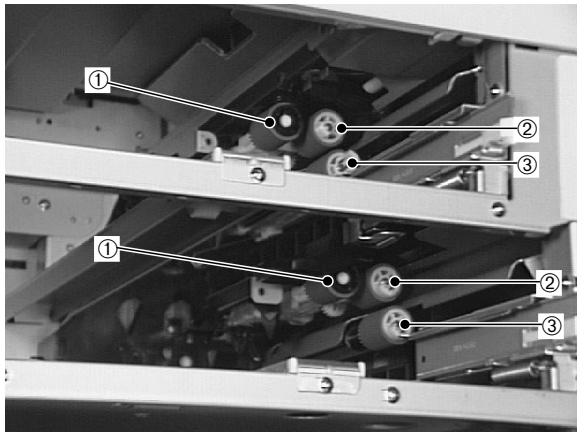
① Separation pad

Figure 3-3-23

G. Pick-up/Feed/Separation Rollers

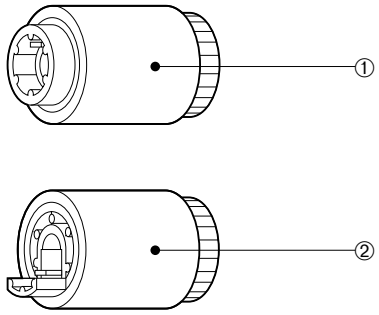
1. Removal from the printer

1) Pull out the upper and lower cassettes.
2) Grasp the knobs of each roller and pull the rollers out of the printer.



① Pick-up roller ② Feed roller
③ Separation roller

Figure 3-3-24



① Pick-up roller
② Feed roller/Separation roller

Figure 3-3-25

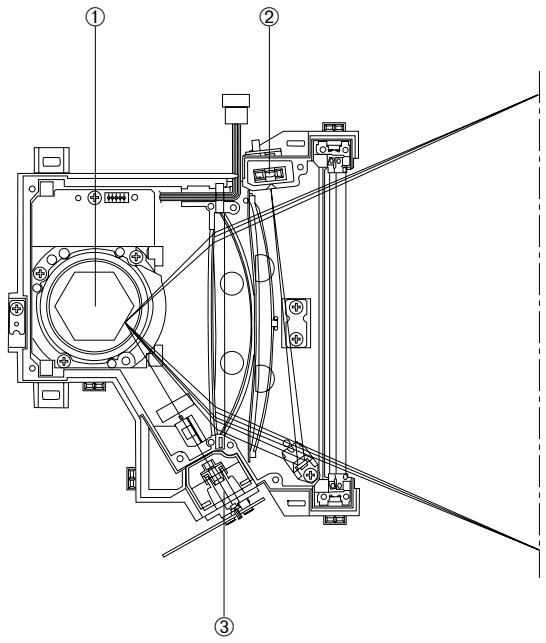
Note: Be sure to replace the feed roller and the separation roller together.

IV. EXPOSURE SYSTEM

A. Laser/Scanner Unit

1. Configuration

The laser/scanner unit scans the laser beam across the photo-sensitive drum. The configuration of the laser/scanner unit is shown in the below figure.

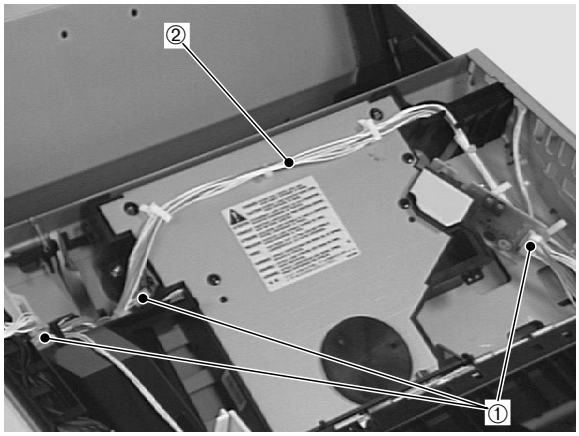


① Scanner unit ② BD PCB
③ Laser unit

Figure 3-4-1

2. Removal from the printer

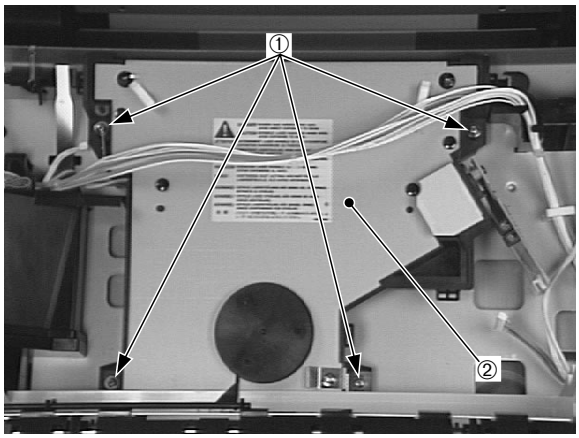
1) Remove the upper cover unit.
2) Disconnect the 3 connectors and the cable from the laser/scanner unit.



① Connectors ② Cable

Figure 3-4-2

3) Remove the 4 screws and the laser/scanner unit.



① Screws ② Laser/scanner unit

Figure 3-4-3

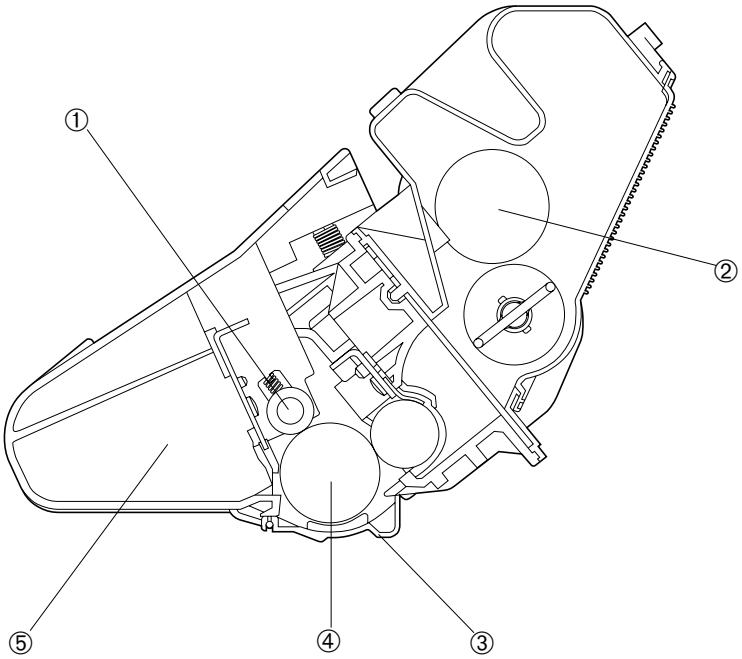
Note: Do not disassemble the laser/scanner unit as it cannot be adjusted in the field

V. ELECTROSTATIC IMAGING/DEVELOPING/CLEANING SYSTEM

A. EP-W Cartridge

1. Configuration

The EP-W cartridge is comprised of the photosensitive drum, primary charging roller, developing unit, cleaning unit, etc.
While the photosensitive drum rotates within the cartridge, a visible image is formed on its surface based on print data according to the print process.
The EP-W cartridge has been designed in such a way that it cannot be disassembled.



① Primary charging roller ② Developing unit ③ Protective shield
④ Photosensitive drum ⑤ Drum cleaning unit

Figure 3-5-1

a. Drum Protective Shutter

Since blank spots and black lines can appear on prints as a result of strong light striking the photosensitive drum, it is covered by a protective shutter. Do not carelessly open the protective shutter. (The protective shutter opens automatically when the cartridge is installed in the printer.)

2. Photosensitive drum

As a general rule, do not touch the photosensitive drum with your hand nor clean it. However, if it becomes necessary to clean it, do so in the following way.

1) Open the upper cover to remove the EP-W cartridge.
2) Open the protective shutter.
3) Apply toner to a flannel cloth and clean the dirty drum surface.

Notes: **1.** Rotate the drum in the same direction that it rotates during printing.
Do not rotate the drum in the opposite direction as the connection of the plate spring that applies developing bias to the developing cylinder will be damaged. Do not touch the photosensitive section of the drum.

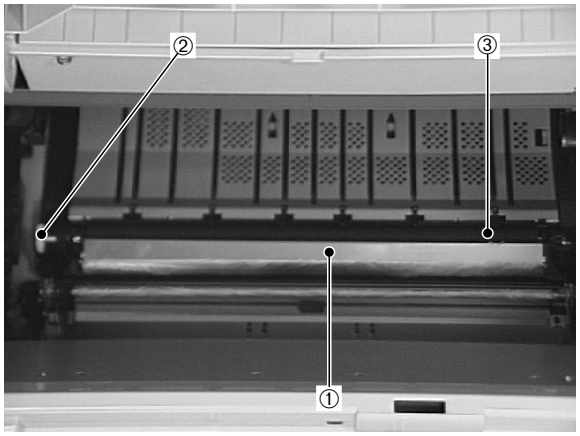
2. Do not use lint-free paper as it will scratch the drum.
Do not use solvents when cleaning.

3. Clean the drum quickly as lengthy exposure to light can have adverse effects on print images.

B. Transfer Charging Roller

1. Removal from the printer

1) Open the upper cover.
2) Open the transfer charging roller guide.
3) Pinch the gear, lift it slightly, and slide it to the left. Remove the transfer charging roller.



① Transfer charging roller guide
② Gear
③ Transfer charging roller

Figure 3-5-2

Notes: **1.** Clean the transfer charging roller only when it becomes very dirty.
Be careful when cleaning not to touch the roller or get solvents or oil on it.
Clean it with dry lint-free paper (that does not produce paper dust). Do not use water or solvents.

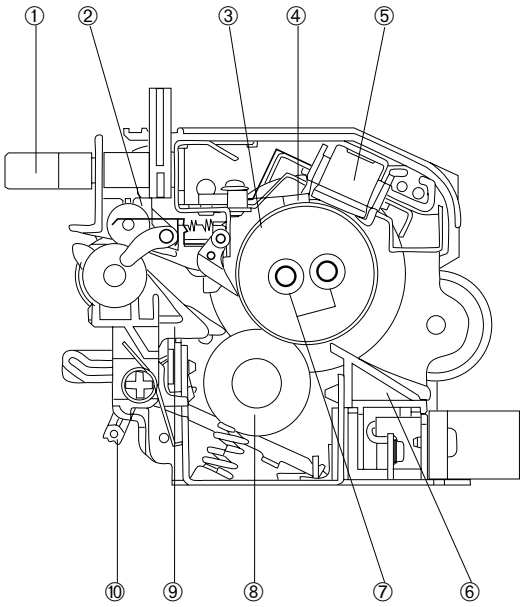
2. Replace the transfer charging roller when you cannot remove the paper dust, toner, etc. with the lint-free paper or when it has deformed.

VI. FIXING SYSTEM

A. Fixing Unit

1. Configuration

A cross-section of the fixing unit, the apparatus that fuses the toner to the print paper, is shown below.

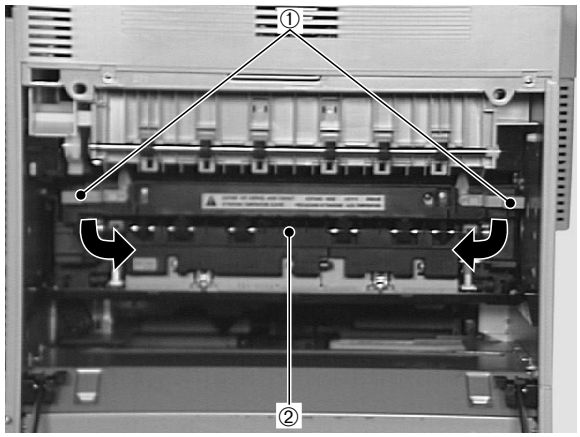


① Fixing unit fastening levers
② Separation upper guide
③ Fixing upper roller
④ Thermistor
⑤ Thermoswitch
⑥ Fixing entrance guide
⑦ Fixing heater
⑧ Fixing lower roller
⑨ Separation lower guide
⑩ Envelope lever

Figure 3-6-1

2. Removal from the printer

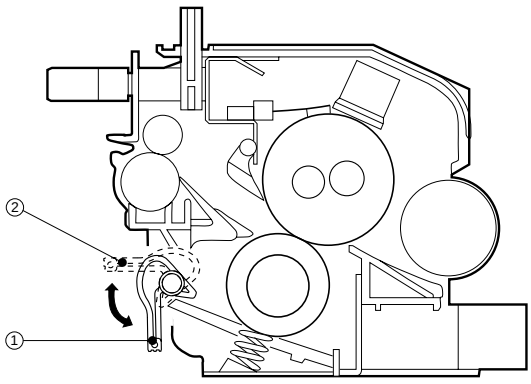
1) Open the delivery cover unit.
2) Move the 2 fastening levers of the fixing unit in the direction of the arrow, slightly lift the fixing unit, and pull it out toward you.



① Fixing unit fastening levers
② Fixing unit

Figure 3-6-2

Note: When replacing the fixing unit, be sure to confirm the location of the fixing unit envelope lever before replacement and then position it the same way after installing the new fixing unit.



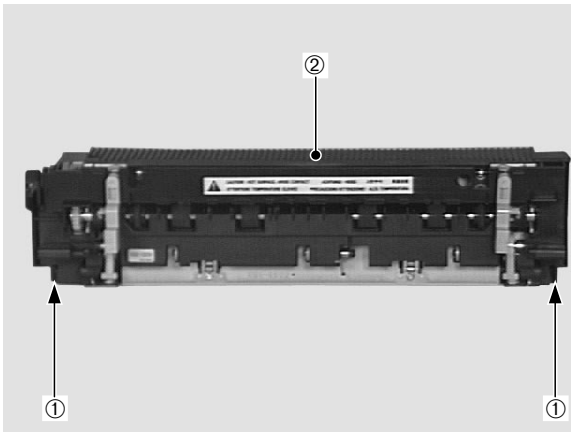
① Normal mode ② Envelope mode

Figure 3-6-3

3. Disassembly/reassembly

a. Fixing roller heater

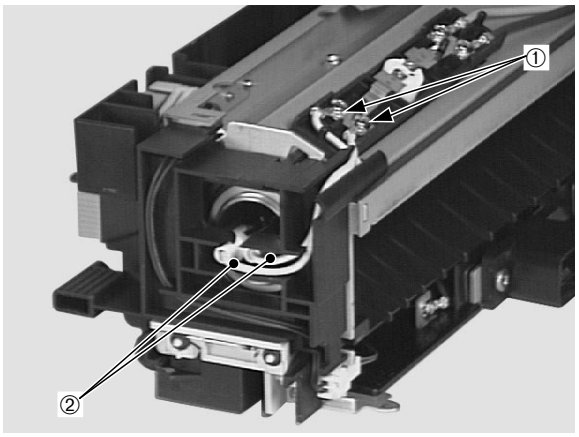
1) Disconnect the 2 claws that hold the wire cover to the fixing unit, and then remove the wire cover.



① Claws ② Wire cover

Figure 3-6-4

2) Remove the 2 screws and the fixing unit lead wire.

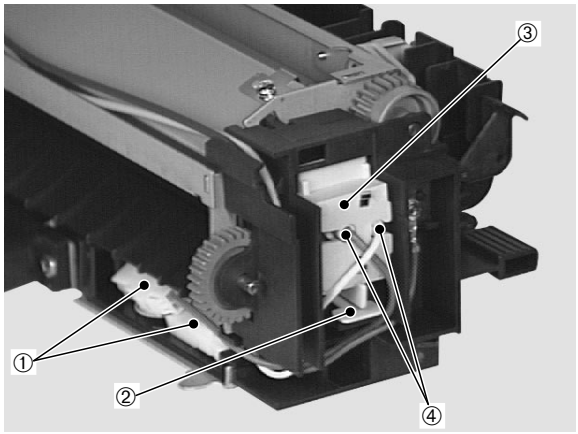


① Screws ② Lead wire

Figure 3-6-5

3) Take out the 2 connectors.

4) Disconnect the heater claw of the holder and remove the holder. Then, gently pull out the fixing heater from the fixing upper roller.

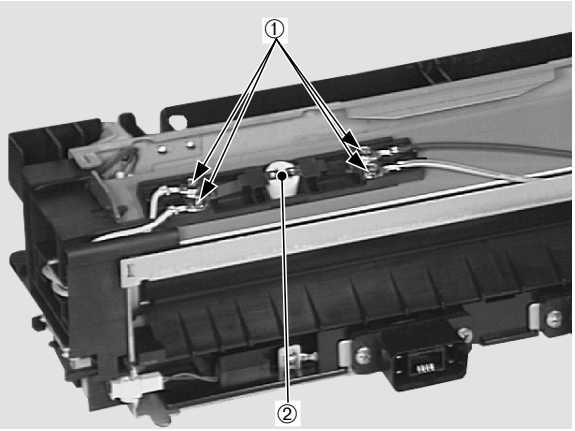


① Connectors ② Claw
③ Heater holder ④ Fixing heater

Figure 3-6-6

b. Thermoswitch

1) Remove the wire cover.
2) Remove the 4 screws and then the lead wire and the thermoswitch.

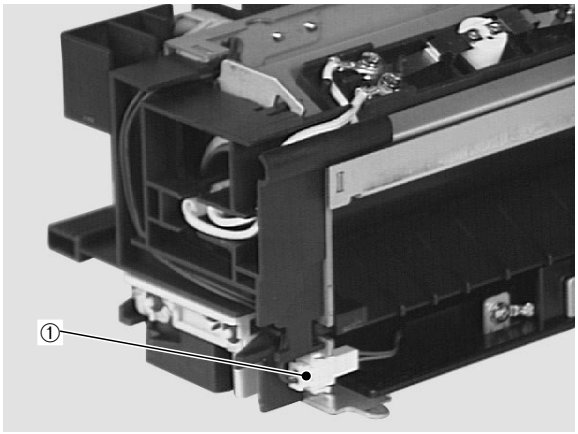


① Screws
② Thermoswitch

Figure 3-6-7

c. Thermistor

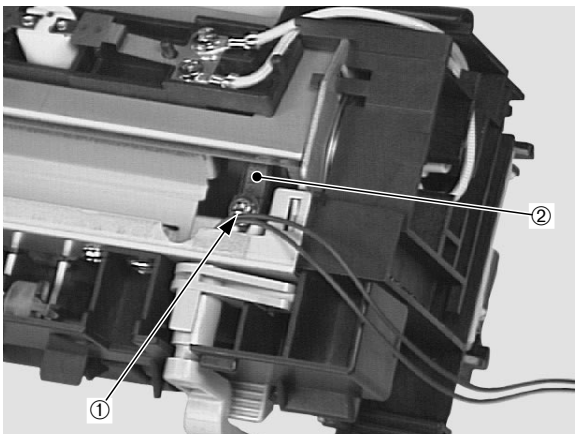
1) Remove the wire cover.
2) Disconnect the connector and remove the cable from the fixing left cover.



① Connector

Figure 3-6-8

3) Remove the screw and the thermistor.



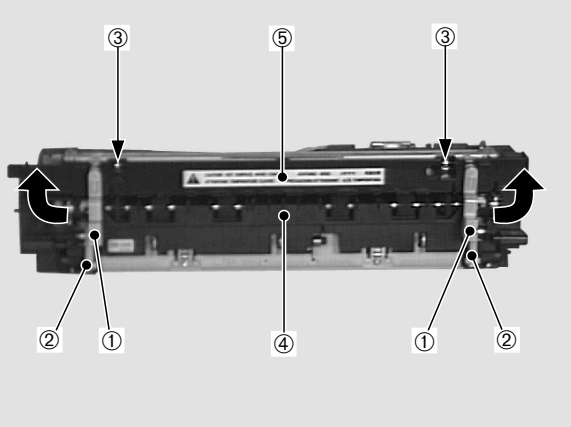
① Screw ② Thermistor

Figure 3-6-9

<Note on reassembly>
When installing the thermistor, ensure that its detection surface is uniformly contacting the fixing upper roller surface.
If it is not making an uniform contact, check that the plate spring has not deformed.

d. Fixing upper roller

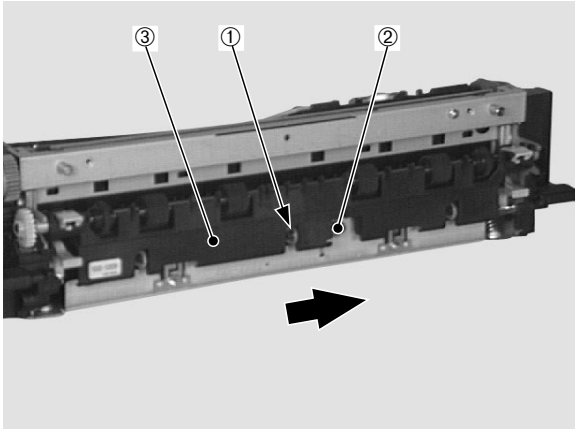
1) Hold up the left and right levers in the direction of the arrow.
2) Holdup the left and right envelope levers.
3) Remove the 2 screws then remove the separation upper guide while pulling out the separation lower guide.



① Fixing unit fastening levers
② Envelope lever
③ Screws
④ Separation lower guide
⑤ Separation upper guide

Figure 3-6-10

4) Remove the E-ring and the spring, then pull out the separation lower guide toward you and slide it off in the direction of the arrow.

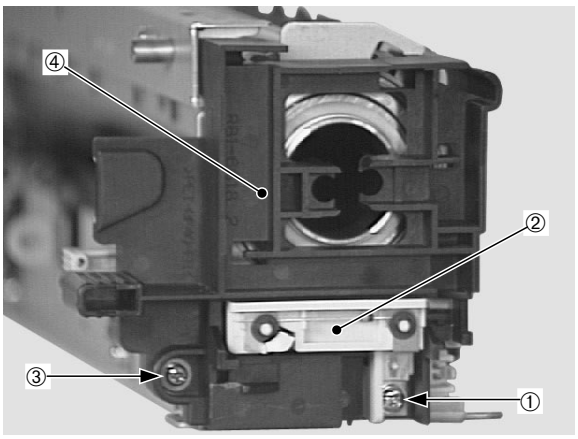


① E-ring
② Spring
③ Separation lower guide

Figure 3-6-11

5) Remove the fixing roller heater following steps 1-4 on Page 3-25.
6) Remove the thermoswitch following steps 2 on Page 3-26.
7) Remove the thermistor following steps 2-3 on Page 3-26.
8) Remove the screws and diode holder.

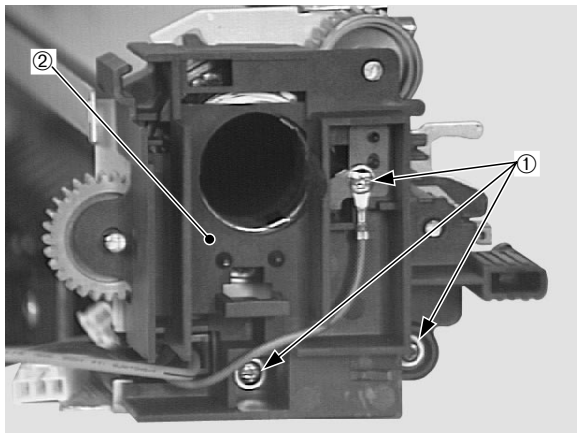
9) Remove the screws and the right fixing cover.



① Screw
② Diode holder
③ Screw
④ Right fixing cover

Figure 3-6-12

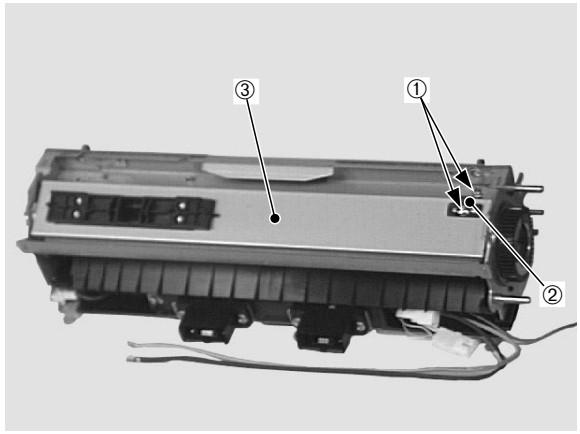
10) Remove the 3 screws and the left fixing cover.
11) Remove the 4 gears.



① Screws ② Left fixing cover

Figure 3-6-13

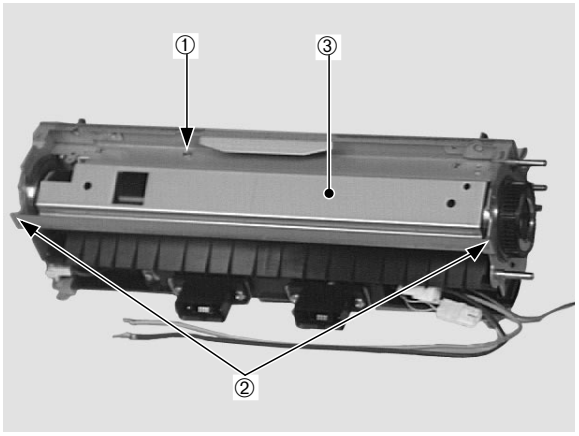
12) Remove the 2 screws, the grounding plate, and the thermoswitch stay.



① Screw
② Grounding plate
③ Thermoswitch stay

Figure 3-6-14

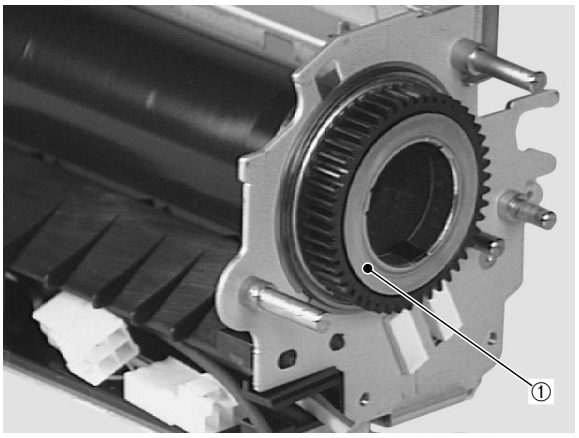
13) Remove the screw, undo the 2 claws, and take off the fixing roller cover.



① Screw
② Claw
③ Fixing roller cover

Figure 3-6-15

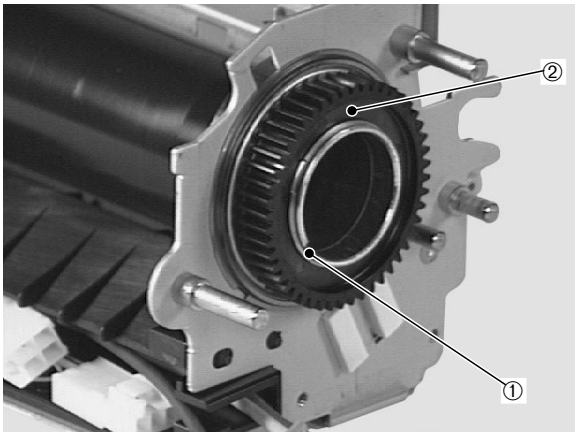
14) Remove the grounding ring.



① Grounding ring

Figure 3-6-16

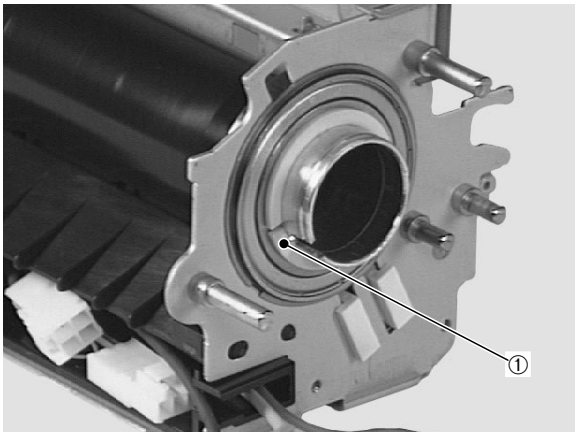
15) Remove the C-ring from the gear.



① C-ring
② gear

Figure 3-6-17

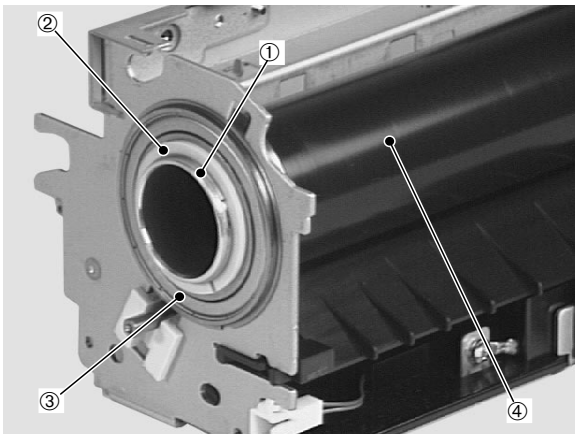
16) Removing the bushing.



① Bushing

Figure 3-6-18

17) Remove the C-ring from the bushing.
18) Remove the bearing from the fixing upper roller.

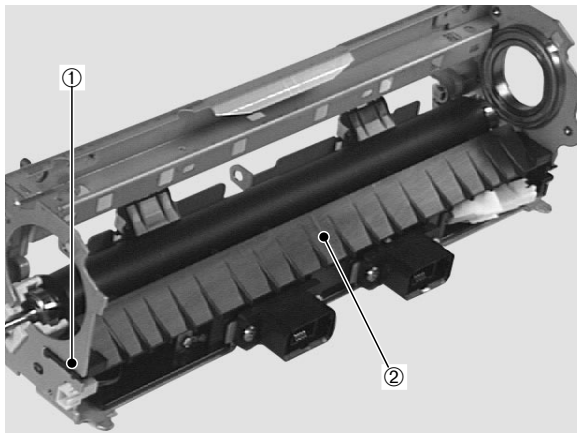


① C-ring
② Bushing
③ Bearing
④ Fixing upper roller

Figure 3-6-19

e. Fixing lower roller

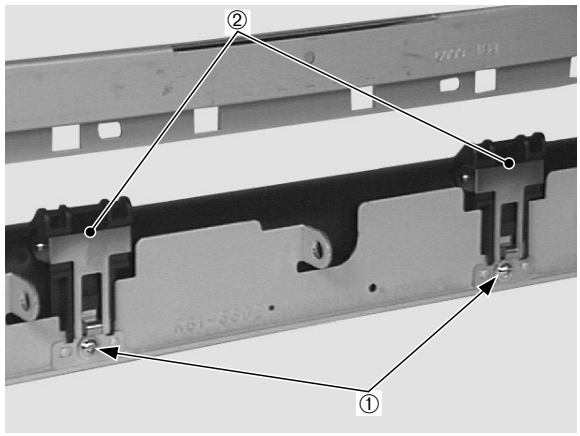
1) Remove the fixing upper roller following steps 1-18 from Page 3-27.
2) Disconnect the claw and remove the fixing entrance guide.



① Claw
② Fixing entrance guide

Figure 3-6-20

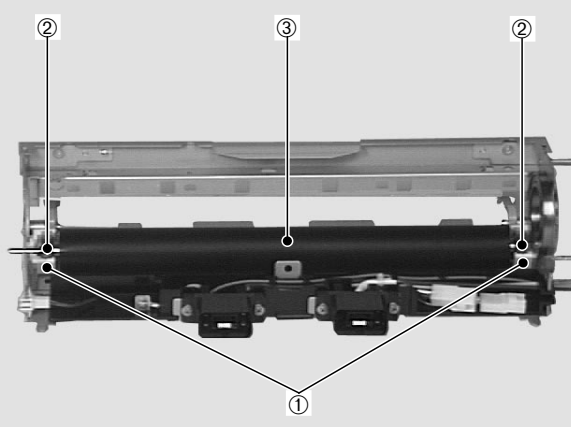
3) Remove the 2 screws and the 2 separation guides.



① Screws ② Separation guides

Figure 3-6-21

4) Remove the fixing lower roller with its holder.
5) Remove the 2 holders and 2 bushings from the fixing lower roller.



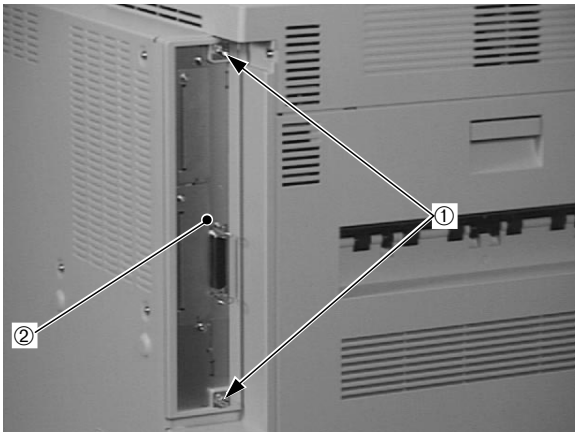
① Holders
② Bushings
③ Fixing lower roller

Figure 3-6-22

VII. ELECTRONIC COMPONENTS

A. Video Controller PCB

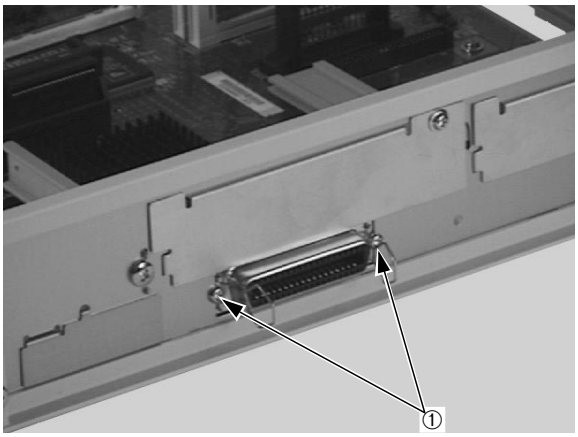
1) Remove the 2 screws , then pull out the video controller PCB unit.



① Screws
② Video controller PCB unit

Figure 3-7-1

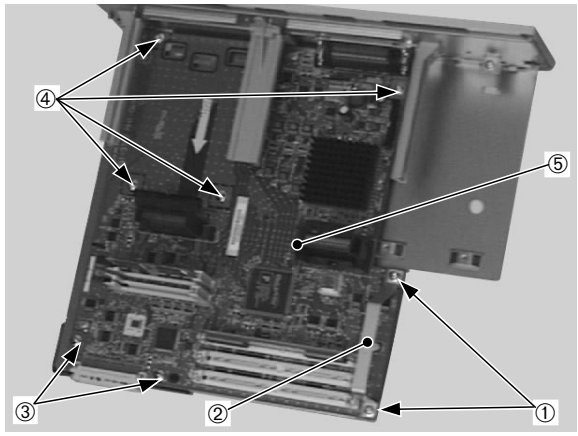
2) Remove the 2 screws.



① Screws

Figure 3-7-2

3) Remove the 2 screws (M3), and then guide.
4) Remove the 2 screws (M4) and the 4 screws (M3), then take out the video controller PCB.



① Screws (M3)
② Guide
③ Screws (M4)
④ Screws (M3)
⑤ Video controller PCB

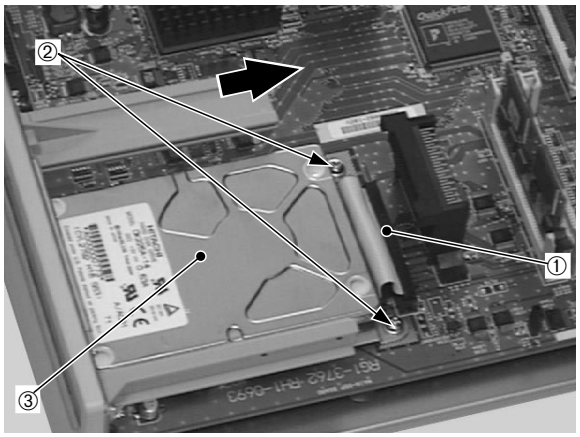
Figure 3-7-3

Notes: 1. When replacing the video controller PCB, be sure to remove the EEPROM from the old board and reinstall it onto the new board.
2. If you removed ROM DIMM or RAM SIMM when you repaced the video controller PCB, reinstall it on the new video controller PCB.

B. Hard disk (optional)

1. Removal from the video controller PCB unit

1) Remove the video controller PCB unit.
2) Remove the connector.
3) Remove the 2 screws and slide the hard disk out in the direction of the arrow.

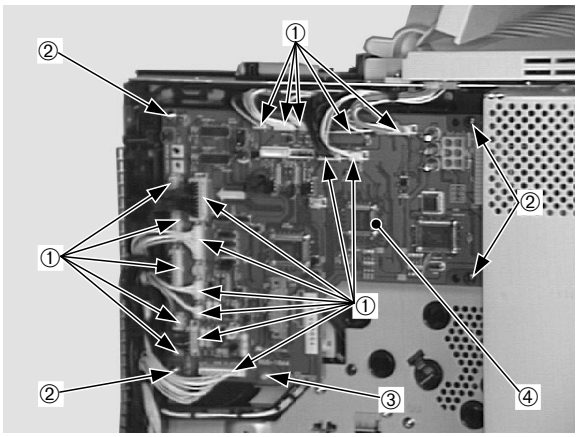


① Connector
② Screws
③ Hard disk

Figure 3-7-4

C. DC Controller PCB

1) Remove the high-voltage power supply unit following steps 1-2 on Page 3-36.
2) Disconnect the 18 connectors from the DC controller PCB.
3) Remove the 4 screws and the mount retainer, then take out the DC controller PCB.

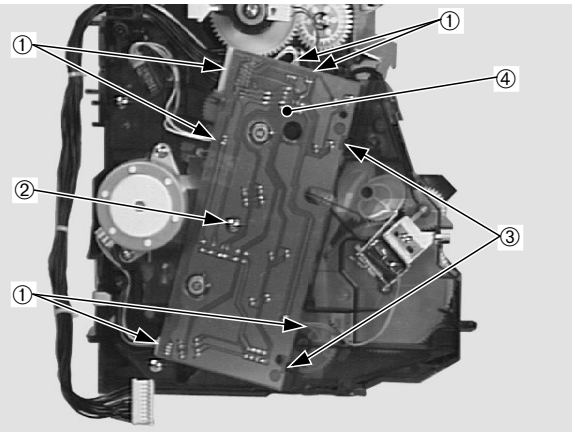


① Connectors
② Screws
③ Mount retainer
④ DC controller PCB

Figure 3-7-5

D. Pick-up PCB

1) Remove the pick-up unit following steps 1-7 on Page 3-12.
2) Disconnect the 6 connectors.
3) Remove the screw, disconnect the 2 claws, and take out the pick-up PCB.

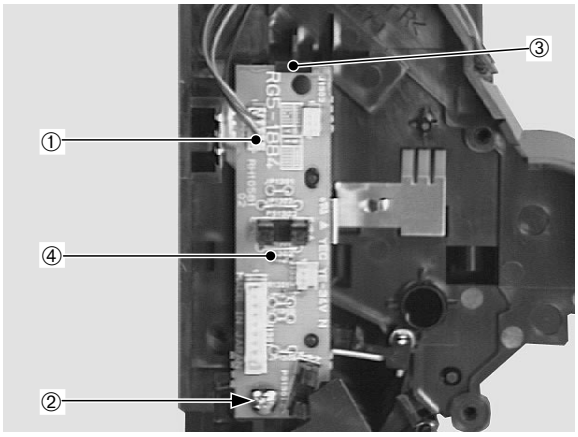


① Connectors ② Screw
③ Claw ④ Pick-up PCB

Figure 3-7-6

E. Multi-purpose Tray PCB

1) Remove the manual feed pick-up unit following steps 1-6 on Page 3-17.
2) Remove the manual feed drive unit following steps 1-4 on Page 3-18.
3) Disconnect the connector.
4) Remove the screw and disconnect the claw. Then take out the multi-purpose tray PCB.

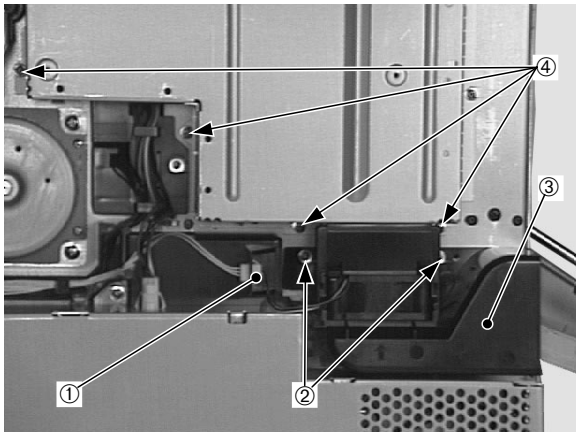


① Connector
② Screw
③ Claw
④ Multi-purpose tray PCB

Figure 3-7-7

F. Switch/Sensor PCB

1) Remove the upper cover unit.
2) Remove the right rear and rear covers.
3) Remove the left rear cover.
4) Remove the connector, the 2 screws, and then the fan duct.
5) Remove the 4 screws.



① Connector ② Screws
③ Fan duct ④ Screws

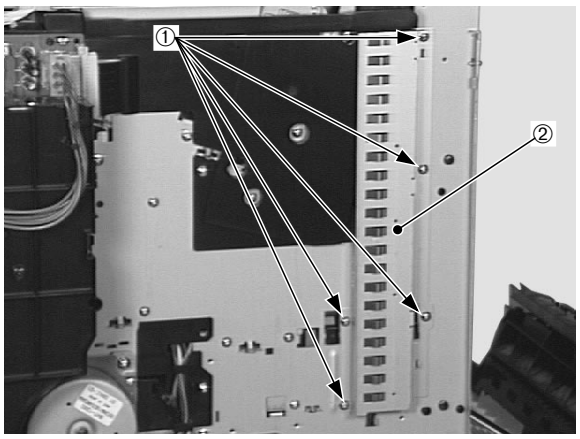
Figure 3-7-8

6) Remove the 3 screws and the shield cover.

① Screws ② Shield cover

Figure 3-7-9

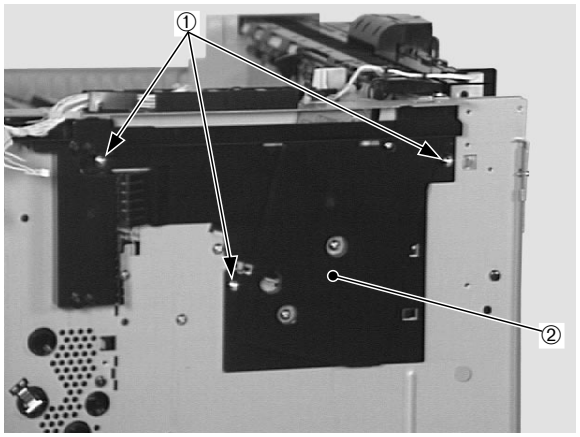
7) Remove the 5 screws and the shield plate.



① Screws ② Shield plate

Figure 3-7-10

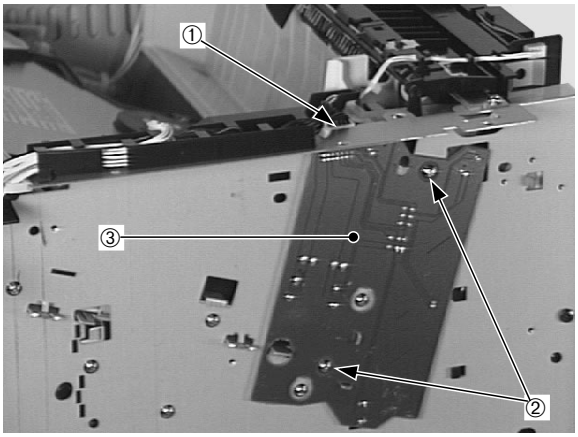
8) Remove the DC controller PCB following steps 1-3 on Page 3-33.
9) Remove the 3 screws and take out the DC controller mounting plate.



① Screws
② DC controller mounting plate

Figure 3-7-11

10) Disconnect the connector, remove the 2 screws, and pull out the board. Disconnect the other connector and remove the switch/sensor PCB.

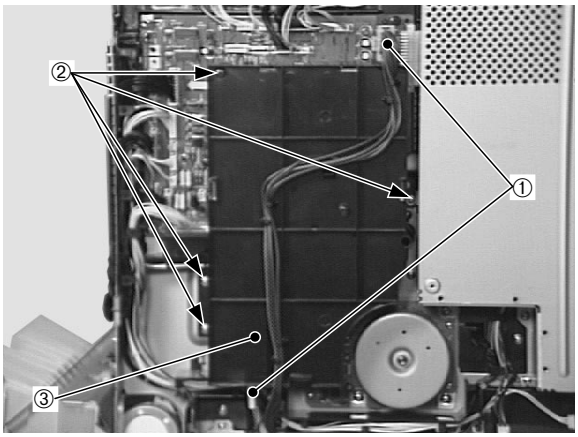


① Connectors
② Screws
③ Switch/sensor PCB

Figure 3-7-12

G. High-voltage Power Supply PCB

1) Remove the right rear and rear covers.
2) Disconnect the 2 connectors, remove the 4 screws, then take out the high-voltage power supply unit.



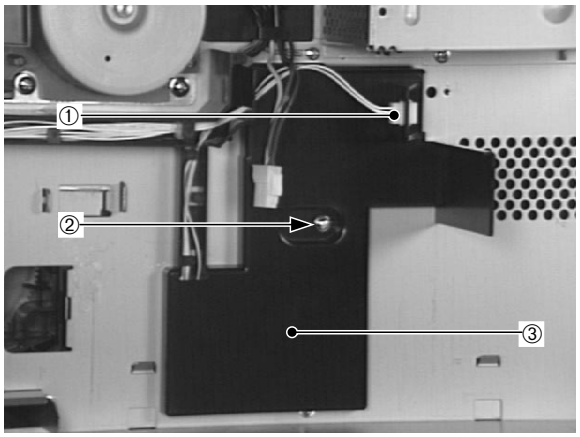
① Connectors
② Screws
③ High-voltage power supply unit

Figure 3-7-13

3) Disconnect the 2 claws and remove the high-voltage power supply PCB.

H. Cassette-size Sensing PCB

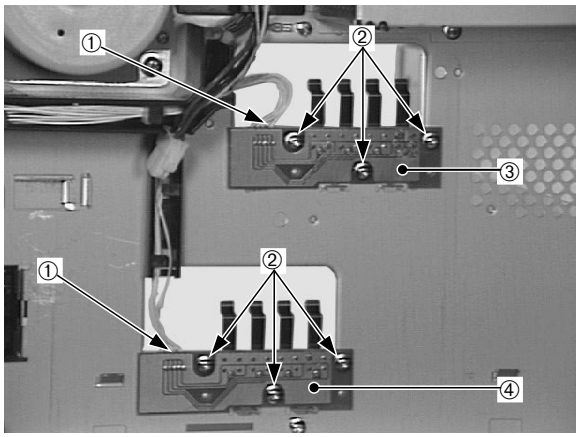
1) Remove the cassettes.
2) Remove the power supply following steps 1-6 on Page 3-37.
3) Disconnect the connector, remove the screw, then take out the cassette-size sensing cover.



① Connector
② Screw
③ Cassette-size sensing cover

Figure 3-7-14

4) Disconnect the connector from each PCB, remove the 3 screws, then take out the cassette-size sensing PCBs.

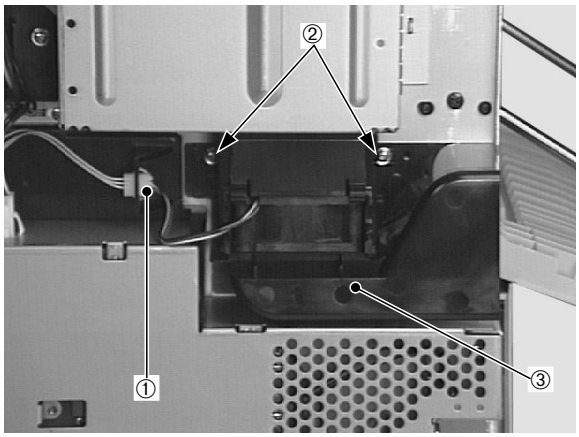


① Connectors
② Screws
③ Upper-cassette-size sensing PCB
④ Lower-cassette-size sensing PCB

Figure 3-7-15

I. Power Supply

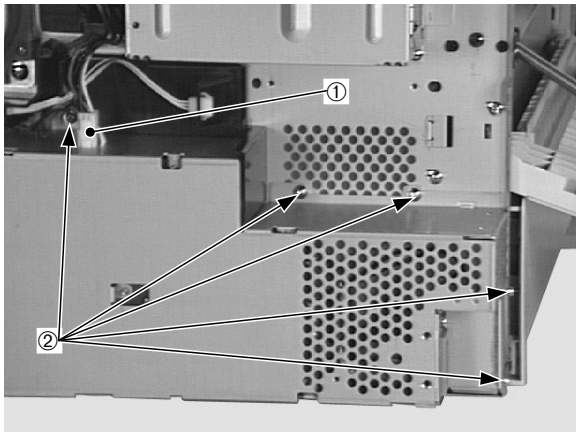
1) Remove the left rear and rear covers.
2) Disconnect the connector, remove the 2 screws, then take out the fan duct.



① Connector ② Screws
③ Fan duct

Figure 3-7-16

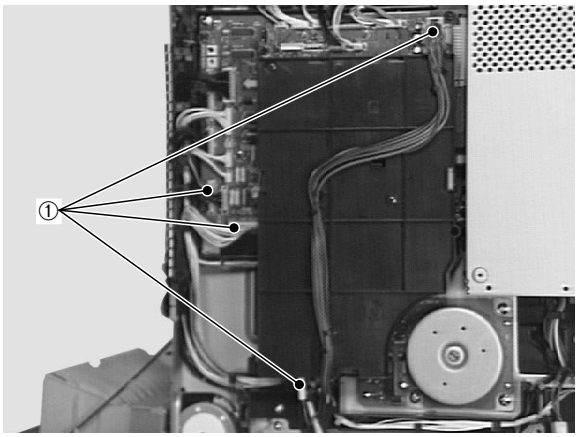
3) Remove the connector.
4) Take out the 5 screws.



① Connector ② Screws

Figure 3-7-17

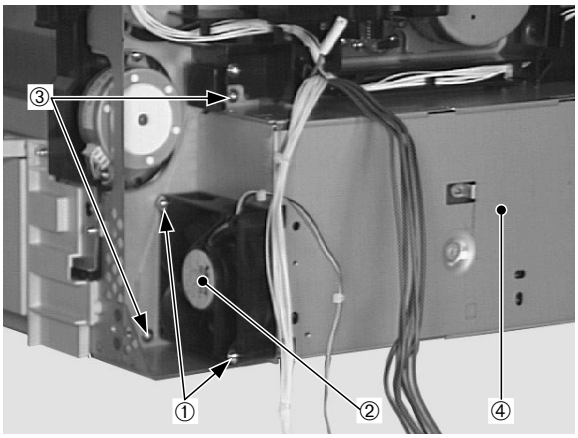
5) Remove the 4 connectors.



① Connectors

Figure 3-7-18

6) Remove the 2 screws and the power supply unit fan.
7) Remove the 2 screws and take off the power supply unit.



① Screws
② Power supply fan
③ Screws
④ Power supply

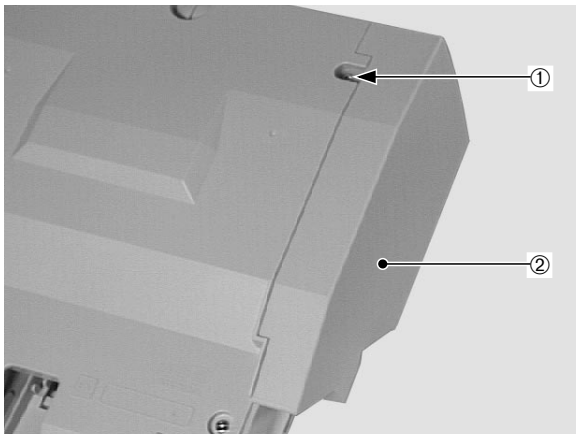
Figure 3-7-19

VIII. ENVELOPE FEEDER

1. Removal of the External Covers

a. Rear Cover

1) Remove the screw and take off the rear cover.



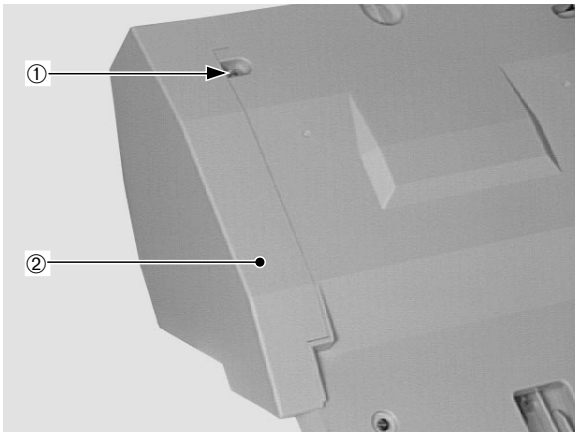
① Screw ② Rear cover

Figure 3-8-1

Note: Before performing an operation check on the envelope feeder while the rear cover is off, be sure to either hold the bottom of the PCB with your hand or tape it to the frame.

b. Front Cover

1) Remove the screw and take off the front cover.

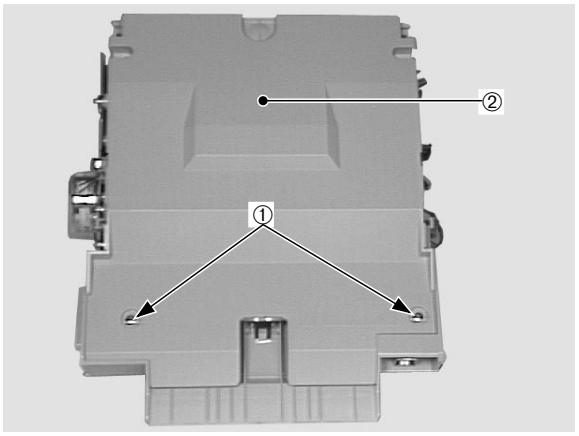


① Screw ② Front cover

Figure 3-8-2

c. Lower Cover

1) Remove the rear and front covers.
2) Remove the two screws and dislodge the lower cover.

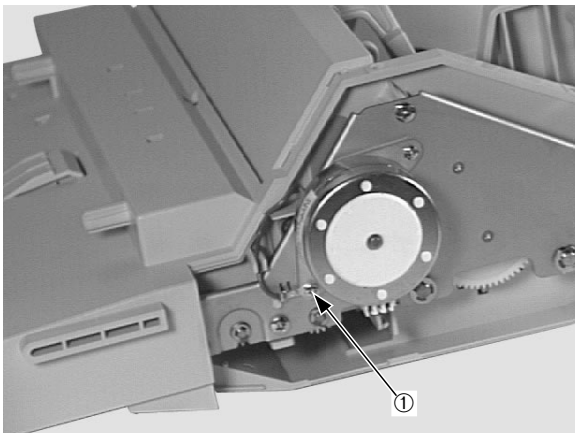


① Screws ② Lower cover

Figure 3-8-3

d. Upper Cover

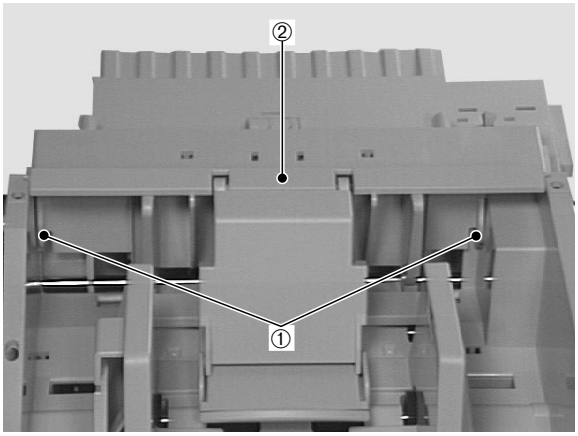
1) Remove the rear and front covers.
2) Remove the screw.



① Screw

Figure 3-8-4

3) With a flat nosed screwdriver, unfasten the snaps on both sides. Remove the upper cover and spring.

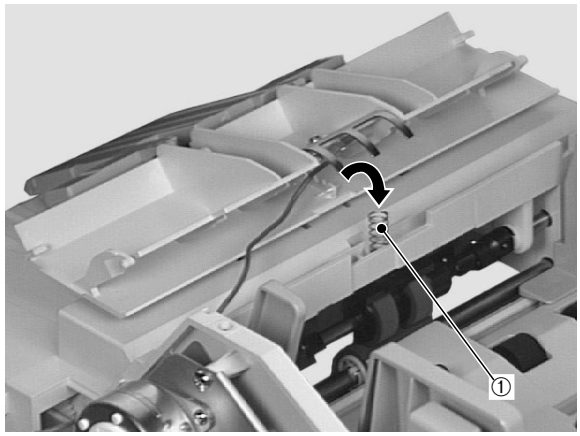


① Snaps ② Upper cover

Figure 3-8-5

Notes: 1. Ensure that the separation guide and upper cover are removed as one unit.
However, in the event that the separation guide has already been removed, be sure to follow the position adjustment directions (refer to page 4-10) when re-installing.

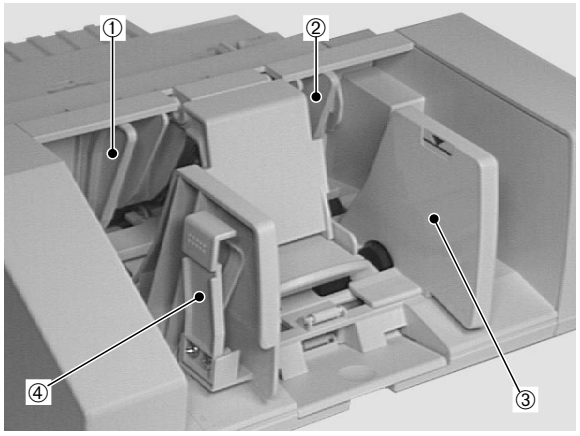
2. Check that the separation roller pressure spring is correctly installed when reassembling.



① Separation roller pressure spring

Figure 3-8-6

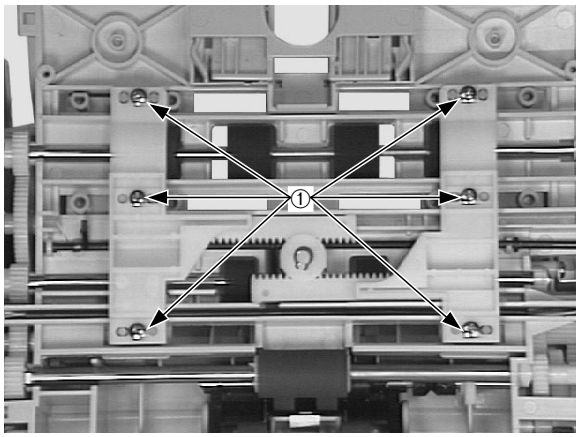
2. Removal of the Envelope Side Guides



① Left front guide ② Left rear guide
③ Right rear guide ④ Right front guide

Figure 3-8-7

1) Remove the rear, front, lower and upper covers.
2) Remove the 6 screws and take out the guides from underneath.

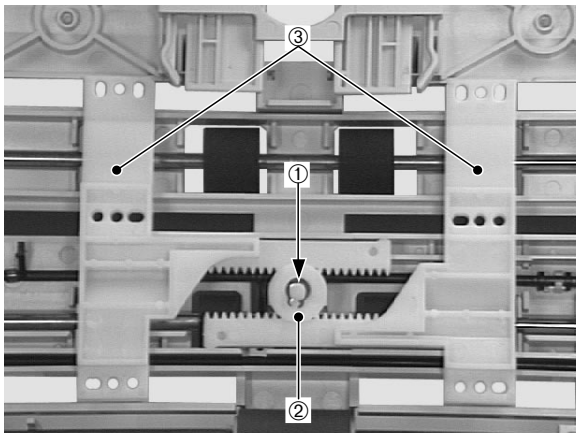


① Screws

Figure 3-8-8

3. Removal of the Envelope Feeder Pick-up Motor

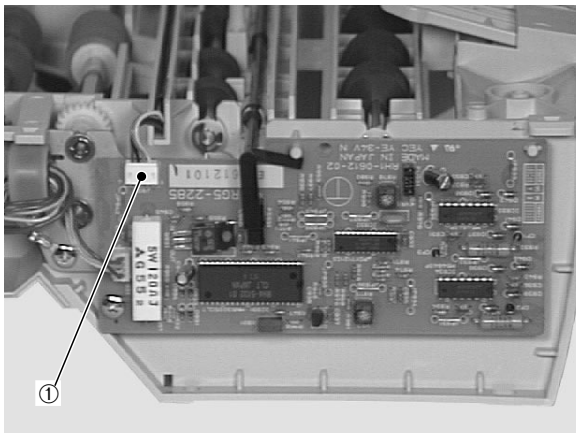
1) Remove the rear, front, lower and upper covers.
2) Remove the envelope side guides as shown in steps 1 and 2 of this page.
3) Remove the C-ring, the gear and the rack.



① C-ring ② Gear
③ Rack

Figure 3-8-9

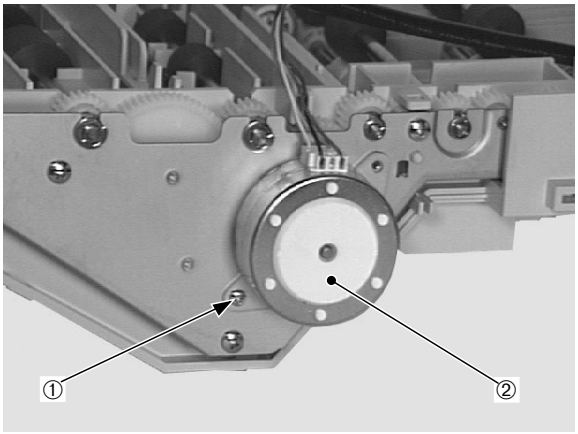
4) Remove the connector.



① Connector

Figure 3-8-10

5) Remove the screw and take out the pick-up motor.



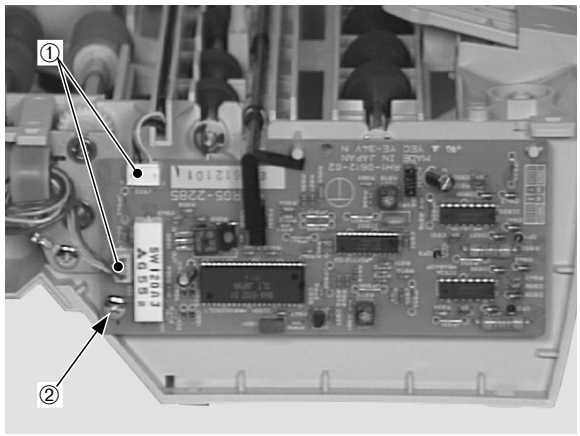
① Screw ② Pick-up motor

Figure 3-8-11

Note: After fastening the guides to the rack, attach the gear by spreading the guides apart.

4. Removal of the Envelope Feeder Driver PCB

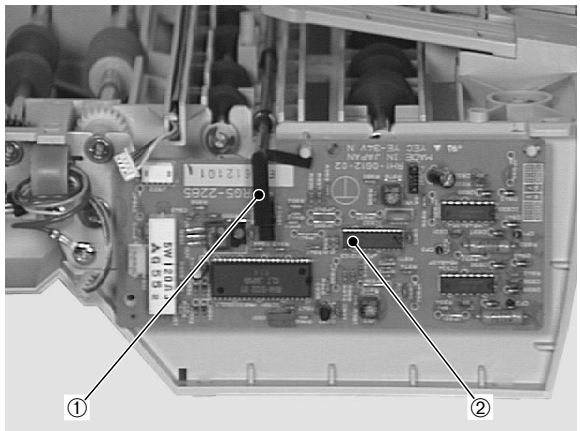
1) Remove the rear, front, lower and upper covers.
2) Remove the envelope guides.
3) Remove the 2 connectors and the screw.



① Connectors ② Screw

Figure 3-8-12

4) After removing the sensor lever, take out the envelope feeder driver PCB.

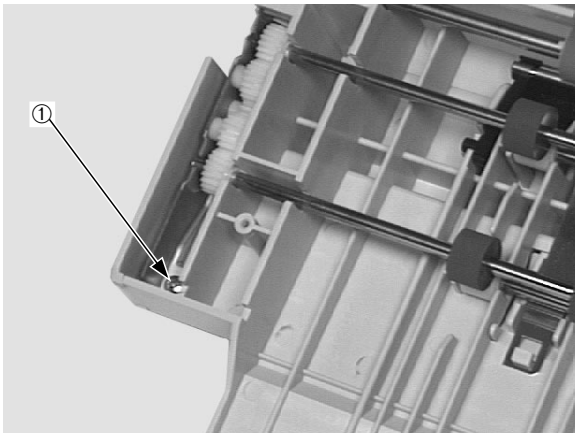


① Sensor lever
② Envelope feeder driver PCB

Figure 3-8-13

5. Removal of the Drive Unit

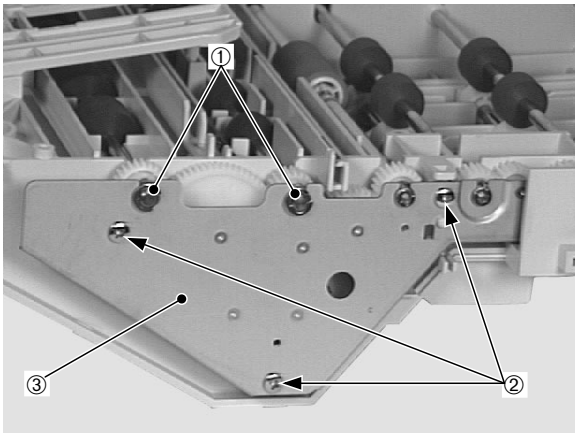
1) Remove the pick-up motor following steps 1 to 5 on page 3-40.
2) Remove the screw.



① Screw

Figure 3-8-14

3) Remove the drive unit by taking off the 2 E-ring and removing the 3 screws.

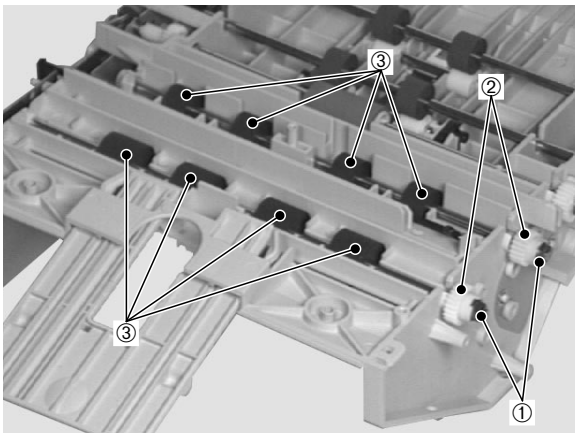


① E-rings ② Screws
③ Drive unit

Figure 3-8-15

6. Removal of the Envelope Feeder Pick-up Roller

1) Follow steps 1 to 5 on page 3-40 and remove the pick-up motor.
2) Remove the drive unit.
3) Remove the 2 bushings and 2 screws, then take out the pick-up roller shaft.



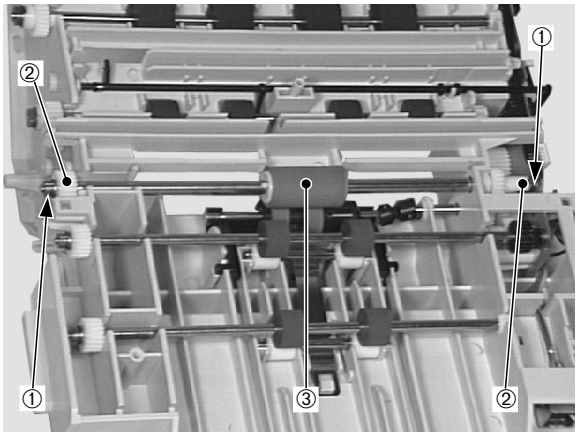
① Bushings ② Gear
③ Pick-up roller

Figure 3-8-16

4) Remove the 2 E-rings and 2 bushings, then take out the pick-up roller shaft.

7. Removal of the Separation Lower Roller, Separation Upper Roller and Torque Limiter

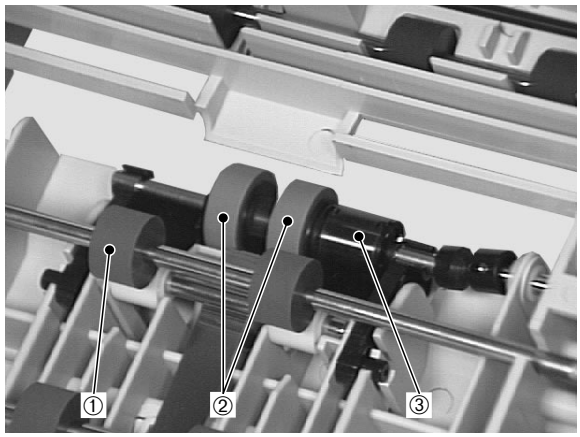
1) Follow steps 1 to 5 on page 3-40 to remove the pick-up motor.
2) Remove the drive unit.
3) Remove the 2 E-rings and 2 bushings, then take out the separation lower roller shaft. Remove the separation lower roller from the shaft.



① E-rings
② Bushings
③ Separation lower roller

Figure 3-8-17

4) Remove the separation lower shaft from the guide. Then take the separation upper roller and torque limiter off the shaft.



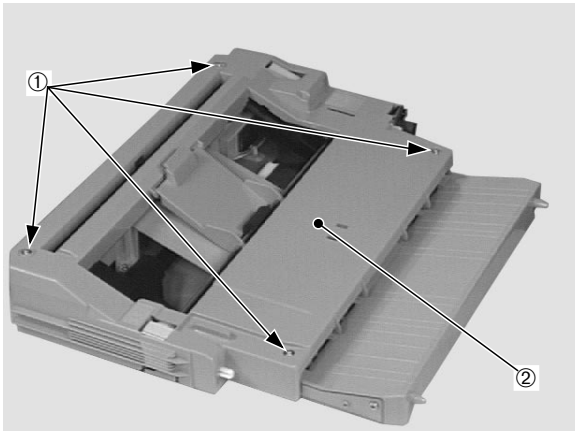
① Guide
② Separation upper roller
③ Torque limiter

Figure 3-8-18

IX. DUPLEXING UNIT

1. Removal of the Upper Guide

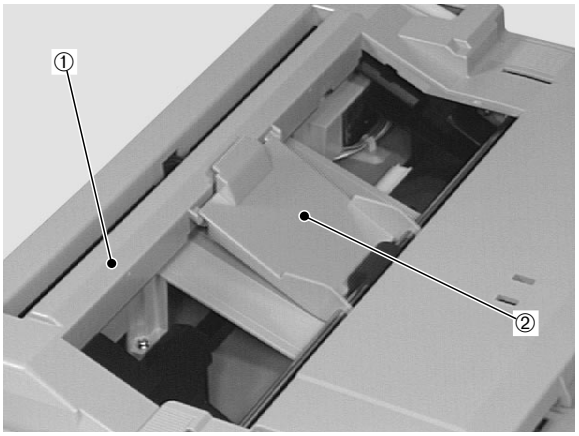
1) Remove the 4 screws, then the upper guide.



① Screws ② Upper guide

Figure 3-9-1

Note: When installing the upper guide, ensure that the guide is on the outside.

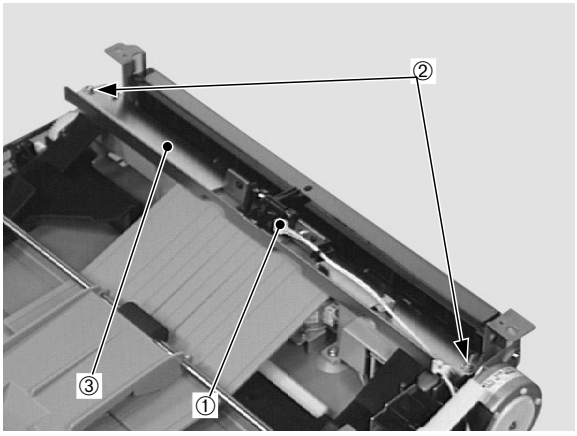


① Upper guide ② Guide

Figure 3-9-2

2. Removal of the Lower Guide

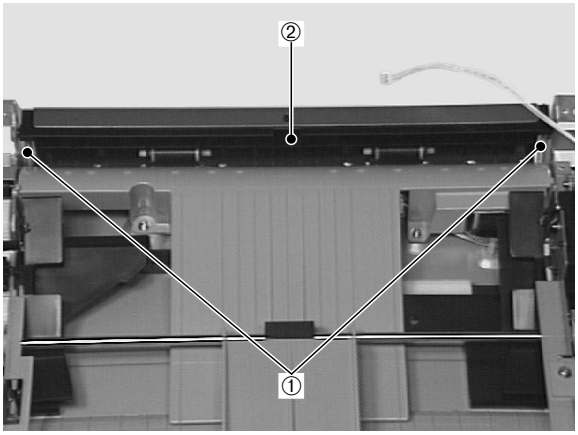
1) Remove the upper cover.
2) Remove the connector.
3) Take out the 2 screws, then the guide.



① Connector ② Screws
③ Guide

Figure 3-9-3

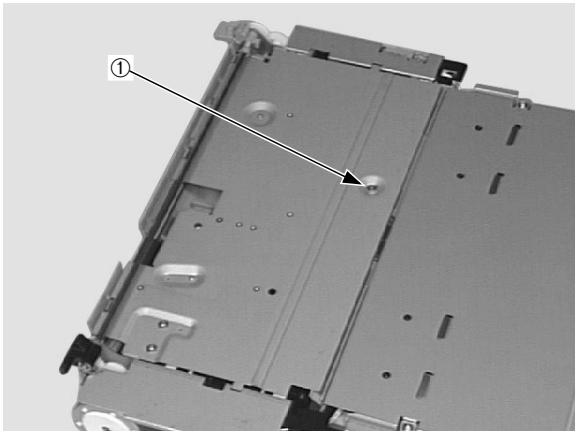
4) Remove the 2 springs, then the switch back guide.



① Springs ② Switch back guide

Figure 3-9-4

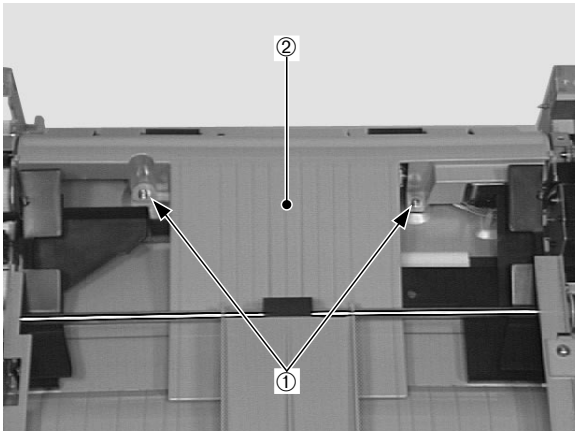
5) Remove the screw.



① Screw

Figure 3-9-5

6) Remove the 2 screws, then the lower guide.

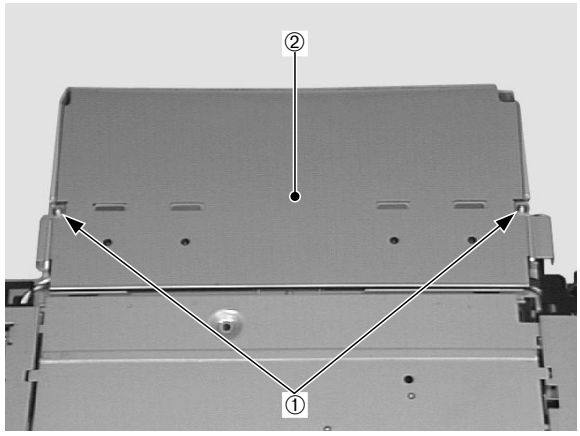


① Screws ② Lower guide

Figure 3-9-6

3. Removal of the Switchback Roller Release Solenoid

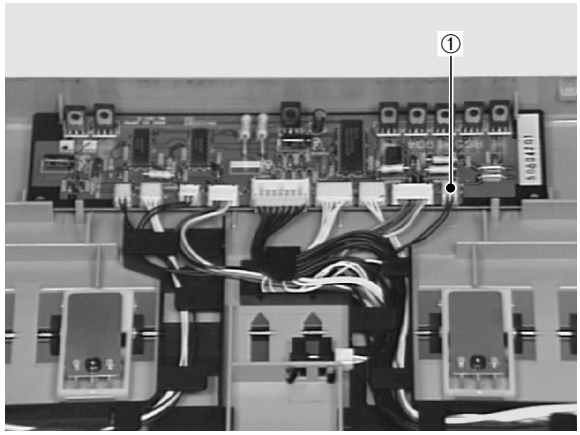
1) Remove the lower guide.
2) Take out the 2 screws, then the PCB cover.



① Screws ② PCB cover

Figure 3-9-7

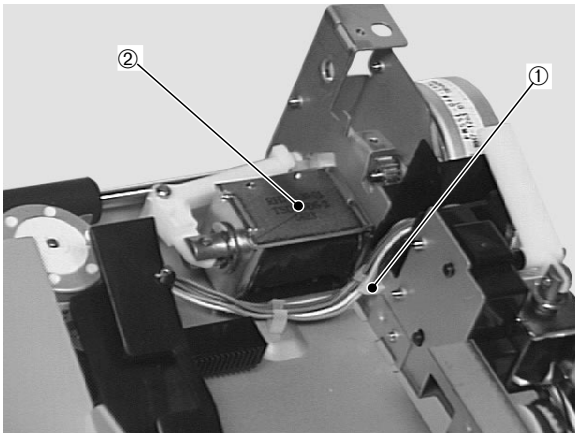
3) Remove the connector.



① Connector

Figure 3-9-8

4) Remove the cable from it's holders.
5) Remove the 2 screws that hold the switchback roller release solenoid from underneath and take off the solenoid.

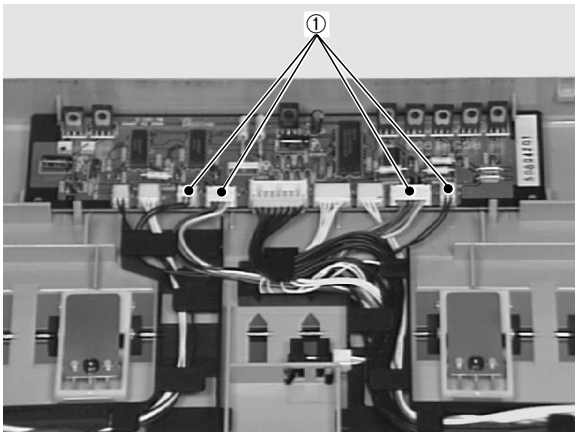


① Cable guide
② Switch-back roller release solenoid

Figure 3-9-9

4. Removal of the Duplex Deflector Drive Solenoid

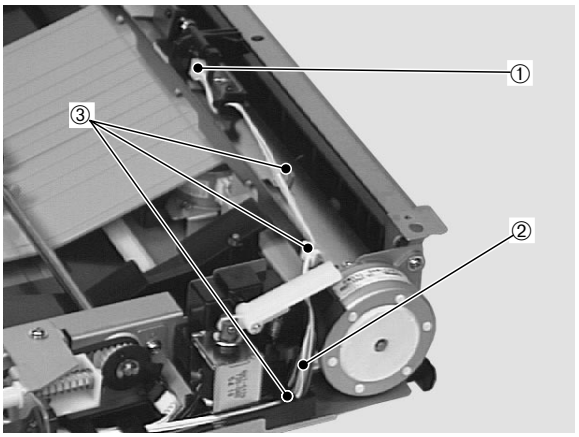
1) Remove the upper guide.
2) Remove the PCB cover, and the 4 connectors.



① Connectors

Figure 3-9-10

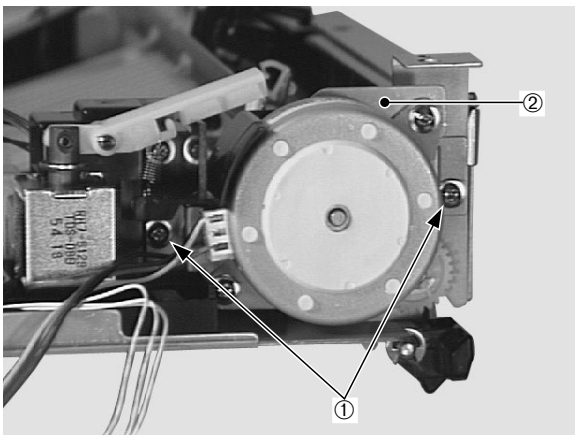
3) Remove the connector.
4) Remove the cable from the guide.



① Connector ② Cable
③ Cable guide

Figure 3-9-11

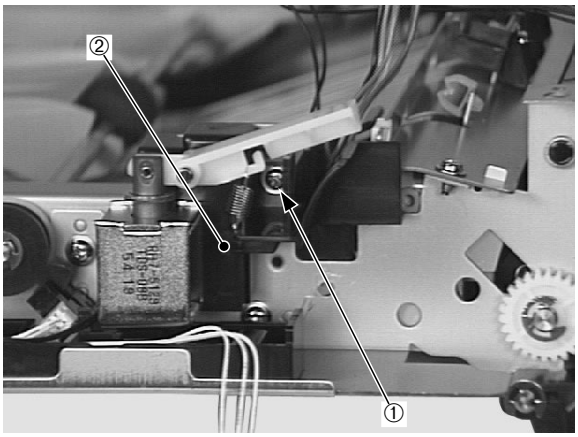
5) Remove the 2 screws, and take off the motor base plate.



① Screws ② Motor base plate

Figure 3-9-12

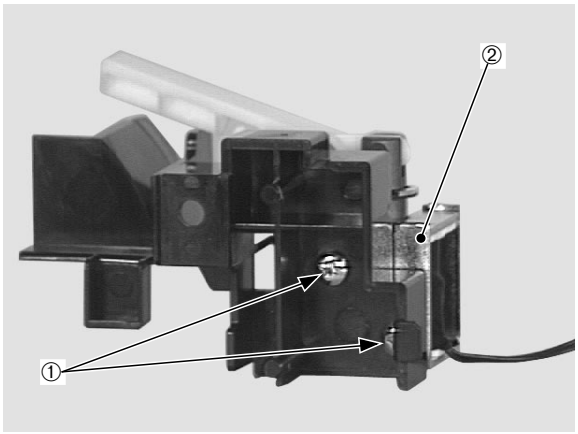
6) Remove the screw and take off the solenoid cover.



① Screw ② Solenoid cover

Figure 3-9-13

7) Remove the 2 screws and take off the duplex deflector drive solenoid.

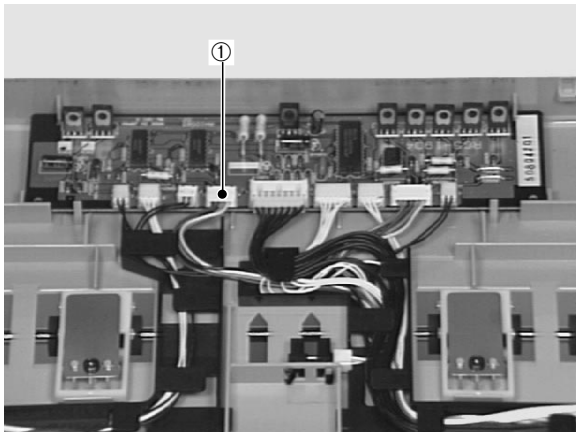


① Screws
② Duplex deflector drive solenoid

Figure 3-9-14

5. Removal of the Switch-back Motor

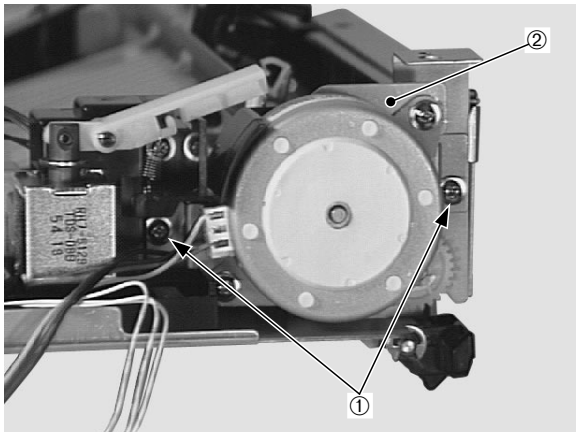
1) Remove the upper guide.
2) Take off the PCB cover and remove the connector.



① Connector

Figure 3-9-15

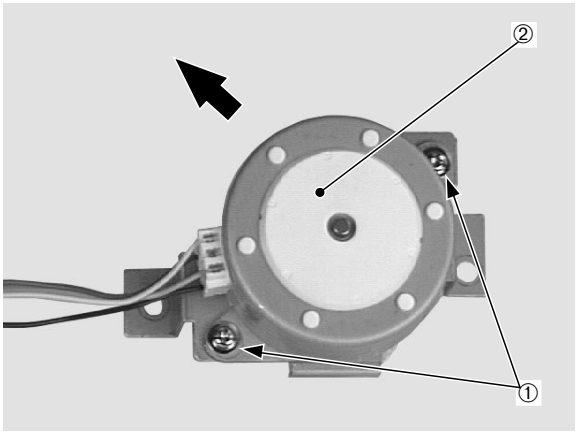
3) Remove the 2 screws, and then the motor base plate.



① Screws ② Motor base plate

Figure 3-9-16

4) Take out the 2 screws, then slide the switch-back motor in the direction of the arrow to remove.

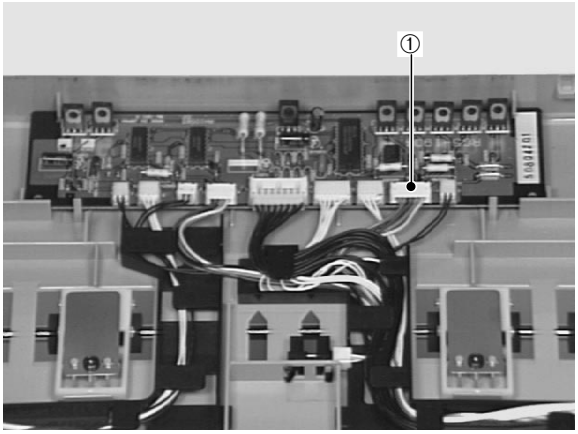


① Screws ② Switch-back motor

Figure 3-9-17

6. Removal of the Side Registration Motor

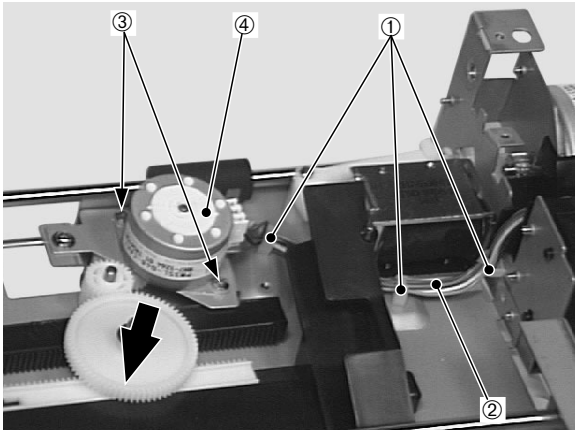
1) Remove the lower guide.
2) Take off the PCB cover, then remove the connector.



① Connector

Figure 3-9-18

3) Undo the cable guides.
4) Take out the 2 screws and slide the side registration motor in the direction of the arrow to remove.

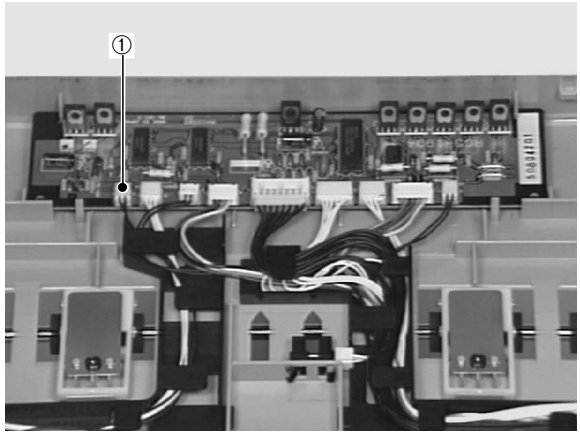


① Cable guides
② Cable
③ Screws
④ Side registration motor

Figure 3-9-19

7. Removal of the Duplex Feed Clutch

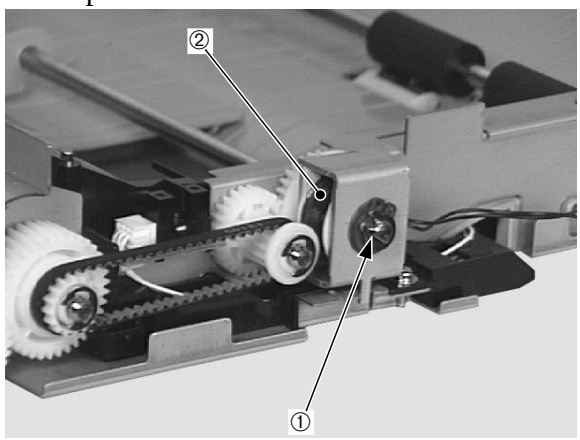
1) Remove the upper guide.
2) Take off the PCB cover and undo the connector.



① Connector

Figure 3-9-20

3) Remove the C-ring and take out the duplex feed clutch.

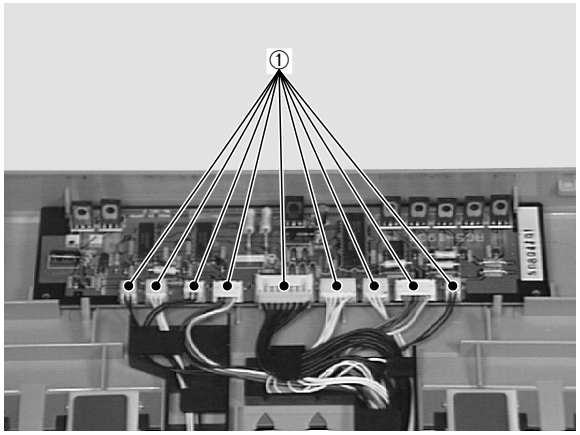


① C-ring ② Duplex feed clutch

Figure 3-9-21

8. Removal of the Duplexing Driver PCB

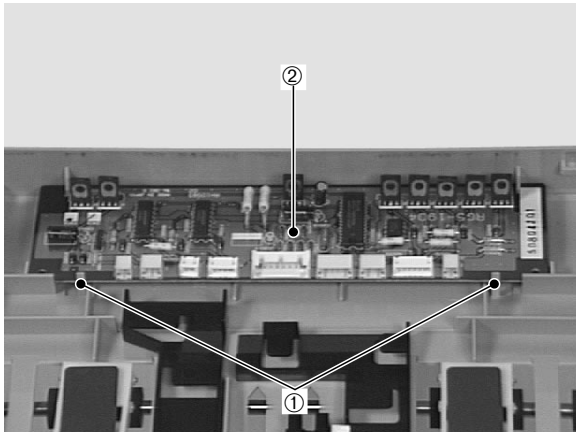
1) Take off the PCB cover, and remove the 9 connectors.



① Connectors

Figure 3-9-22

2) Undo the 2 claws holding the PCB and remove the duplexing driver PCB.



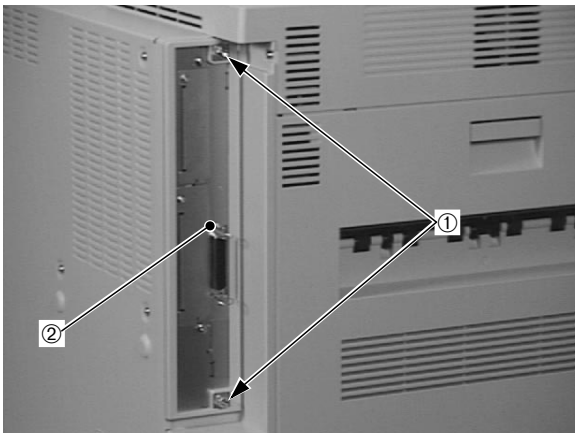
① Claws
② Duplexing driver PCB

Figure 3-9-23

X. OPTION CONTROLLER

1. Removal from the printer

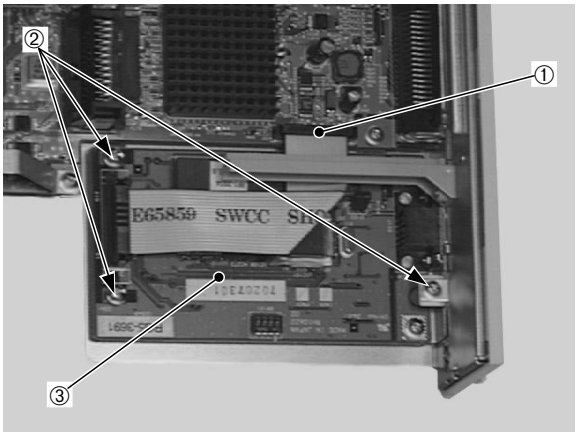
1) Turn OFF the printer.
2) Remove all the interface cables.
3) Loosen the 2 screws and pull out the video controller PCB unit.



① Screws
② Video controller PCB unit

Figure 3-10-1

4) Remove the connector.
5) Remove the 3 screws and the option controller PCB.



① Connector
② Screws
③ Option controller PCB

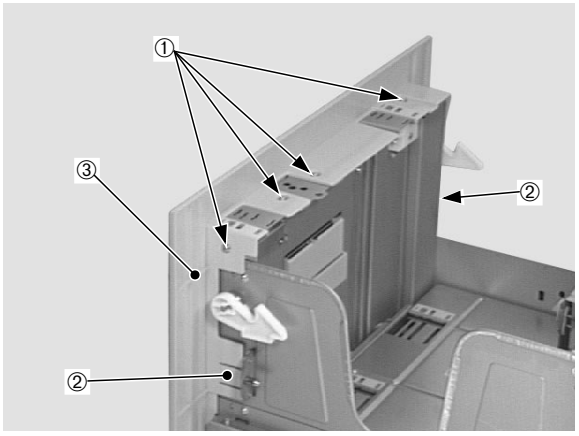
Figure 3-10-2

XI. PAPER DECK

A. External Covers

1. Front cover

1) Pull out the tray.
2) Remove the paper guide.
3) Remove the 4 screws, undo the left and right claws, and take off the front cover.

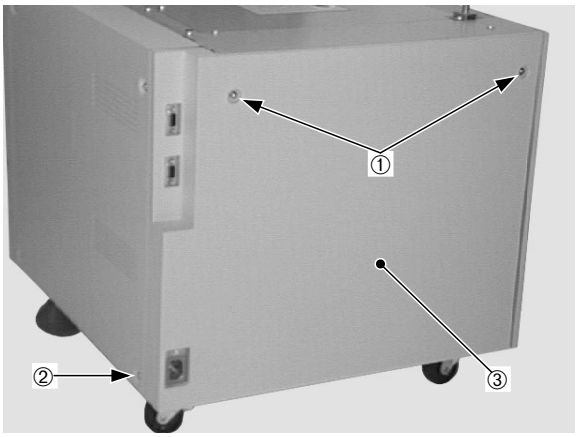


① Screws ② Claws
③ Front cover

Figure 3-11-1

2. Left cover

1) Remove the two screws.
2) Remove the claw, and take off the left cover.

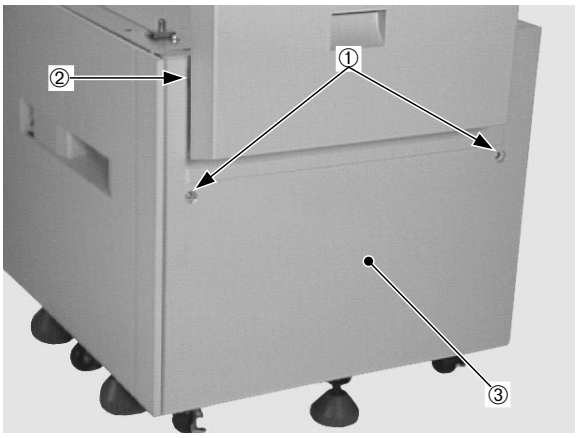


① Screws ② Claw
③ Left cover

Figure 3-11-2

3. Right cover

1) Remove the 2 screws.
2) Undo the claws, and remove the right cover.

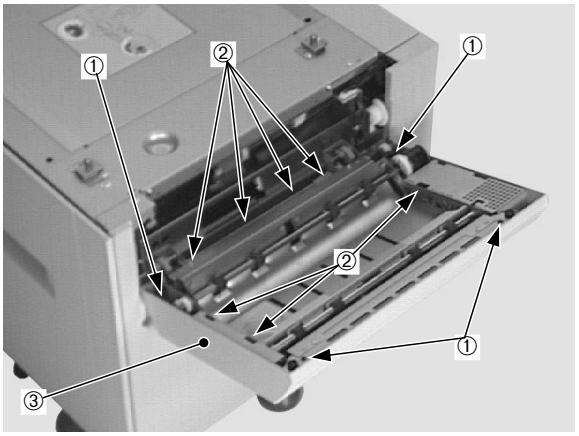


① Screws ② Claws
③ Right cover

Figure 3-11-3

4. Feed cover

1) Remove the 4 screws.
2) Undo the 7 claws, and remove the feed cover.

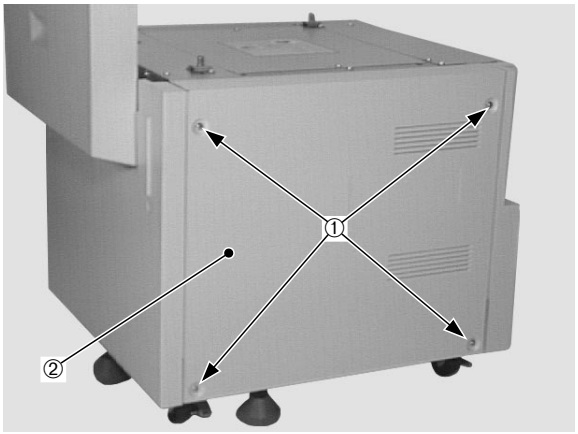


① Screws ② Claws
③ Feed cover

Figure 3-11-4

5. Rear cover

1) Remove the 4 screws, and take off the rear cover.



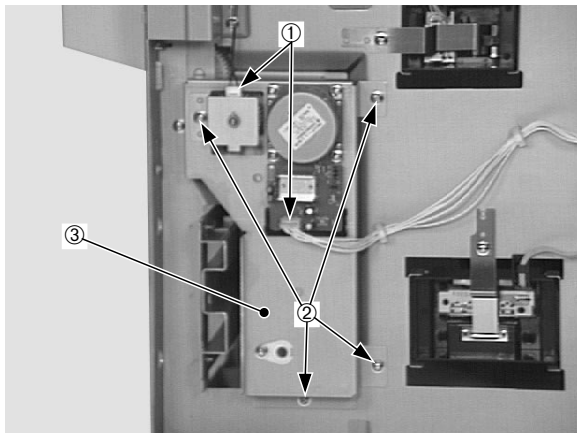
① Screws ② Rear cover

Figure 3-11-5

B. Drive Unit

1. Removal from the main unit.

1) Remove the right and rear covers.
2) Pull out the tray.
3) Remove the 2 connectors and 4 screws then take out the drive unit.



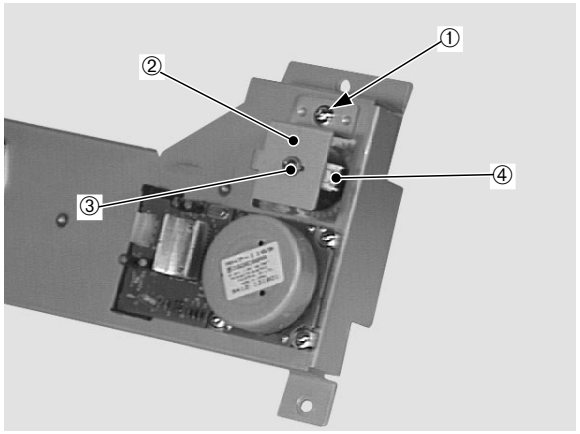
① Connectors ② Screws
③ Drive unit

Figure 3-11-6

2. Disassembly/ assembly

a. Lifter clutch

1) Remove the screw.
2) Remove the clutch cover and bushing, then take out the lifter clutch.



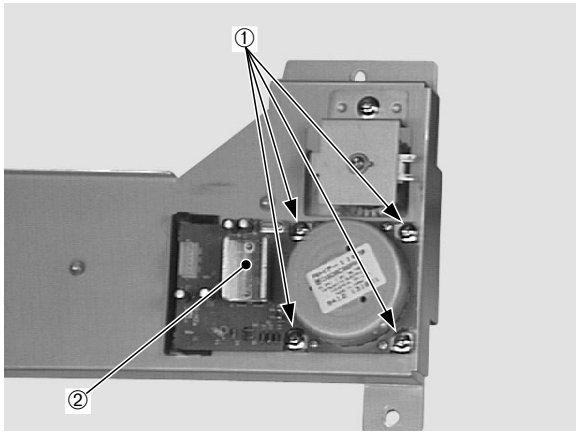
① Screw ② Clutch cover
③ Bushing ④ Lifter clutch

Figure 3-11-7

b. Deck motor

1. Removal from the main unit

1) Remove the 4 screws, and take out the deck motor.



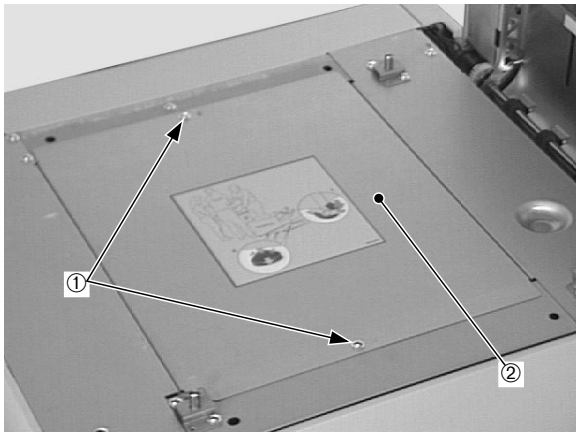
① Screws ② Deck motor

Figure 3-11-8

C. Limit Switch

1. Removal from the main unit.

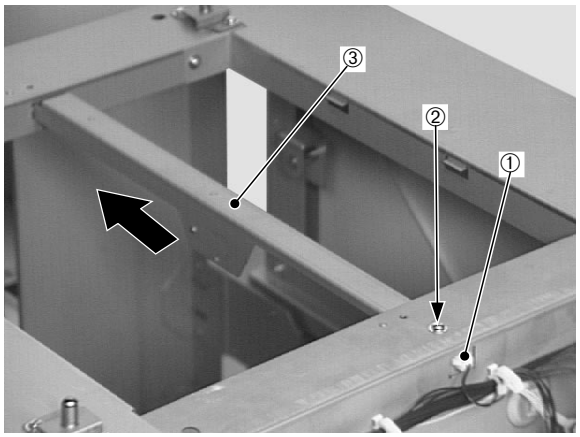
1) Remove the 2 screws, then take off the upper cover.



① Screws ② Upper cover

Figure 3-11-9

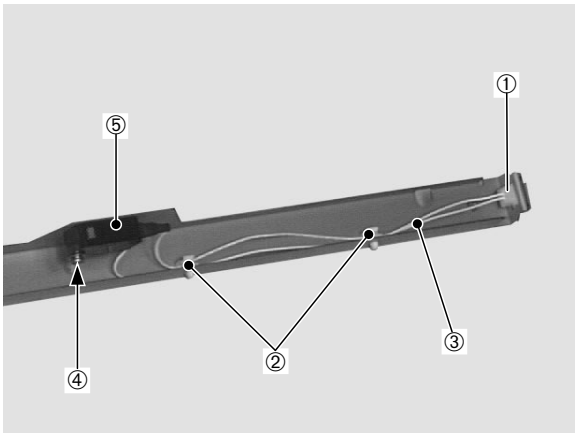
2) Pull out the tray.
3) Remove the rear cover.
4) Remove the connector.
5) Take out the screw and slide the stay in direction of the arrow to remove.



① Connector ② Screw
③ Stay

Figure 3-11-10

6) Remove the connector from the stay, then take the cable out of the band.
7) Remove the screw, then take out the limit switch.



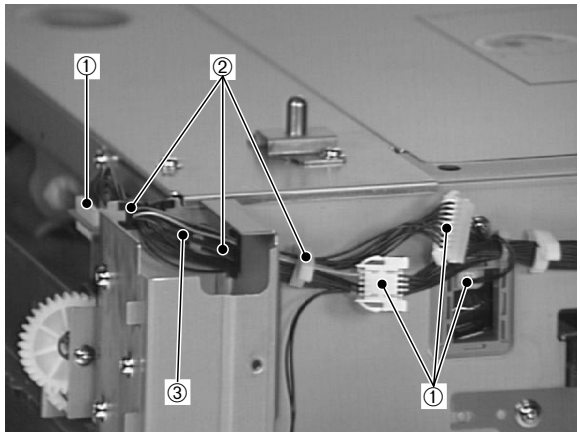
① Connector ② Cable bands
③ Cable ④ Screw
⑤ Limit switch

Figure 3-11-11

D. Pick-up Unit

1. Removal from the main unit.

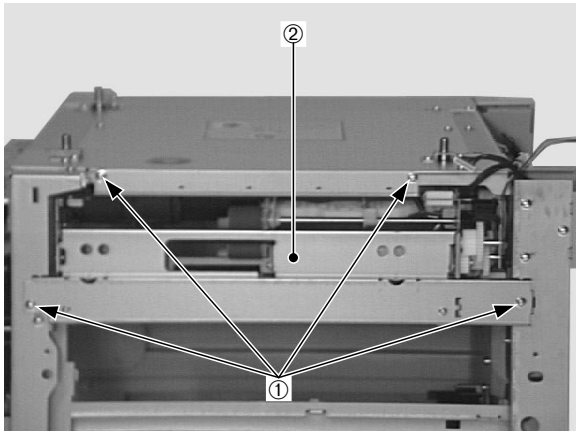
1) Remove the feed unit by following steps 1 to 3 on page 3-58.
2) Pull out the tray.
3) Remove the right and rear covers.
4) Remove the 4 connectors, then take the cable out of the bands.



① Connectors ② Cable bands
③ Cable

Figure 3-11-12

5) Remove the 4 screws, then take out the pick-up unit.



① Screws ② Pick-up unit

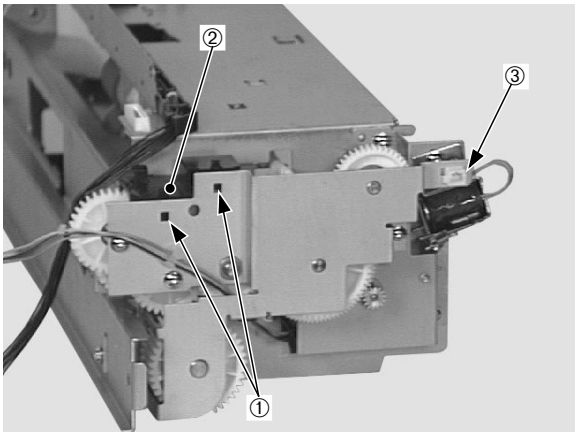
Figure 3-11-13

Note: When replacing the various parts of the pick-up unit, remove the pick-up, feed and separation rollers so not to get grease on them. Be careful also not to get grease on the paper feed guide.

2. Disassembly/ reassembly

a. Pick-up solenoid

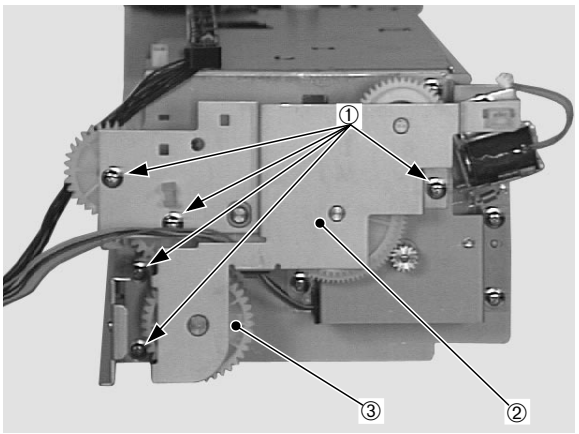
1) Undo the 2 claws and remove the gear cover.
2) Remove the connector.



① Claws ② Gear cover
③ Connector

Figure 3-11-14

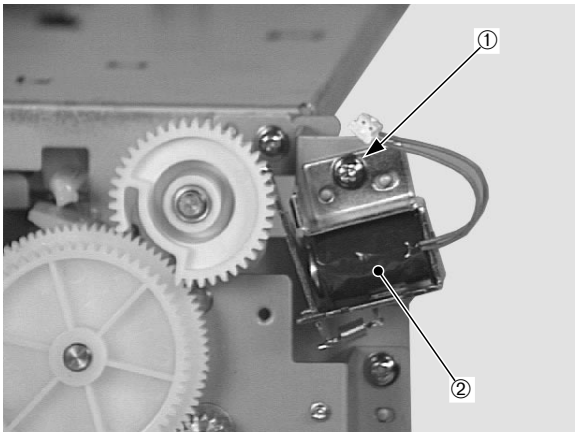
3) Remove the 5 screws.
4) Remove the gear side plate with the gear.



① Screws ② Gear side plate
③ Gear

Figure 3-11-15

5) Remove the screw, then take out the pick-up solenoid.

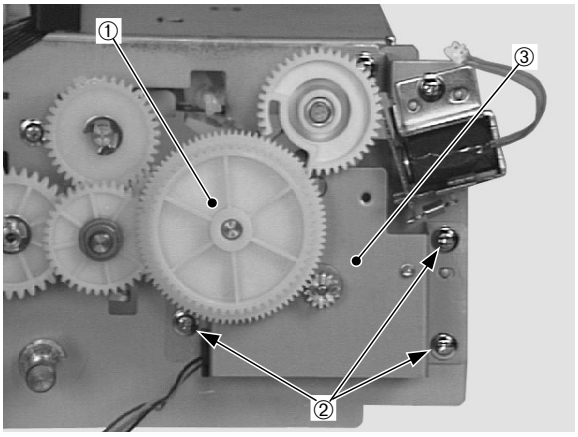


① Screw ② Pick-up solenoid

Figure 3-11-16

b. Pick-up motor

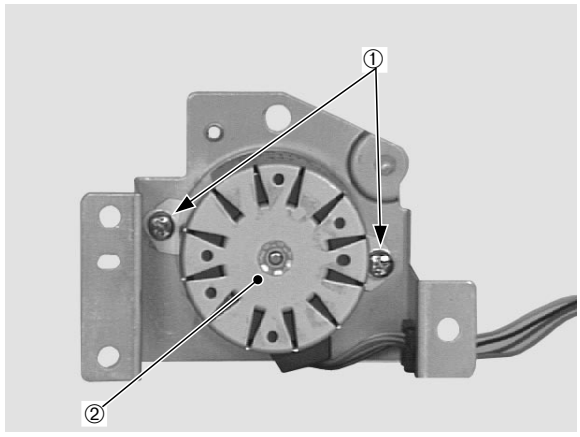
1) Remove the gear side plate by following steps 1 to 4 on this page.
2) Remove the gear.
3) Remove the 3 screws, and take out the motor base plate.



① Gear ② Screws
③ Motor base plate

Figure 3-11-17

4) Remove the 2 screws and then the pick-up motor.



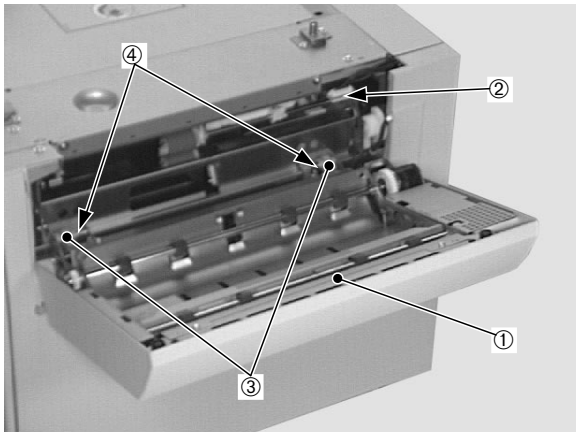
① Screws ② Pick-up motor

Figure 3-11-18

E. Feed Unit

1. Removal from the main unit.

1) Drop the feed unit forward.
2) Remove the connector.
3) Rotate the feed spacer.
4) Remove the 2 screws then the feed unit.



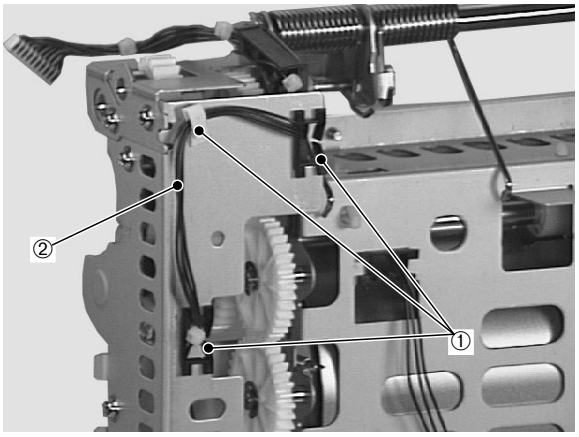
① Feed unit ② Connector
③ Feed spacer ④ Screws

Figure 3-11-19

2. Disassembly/ reassembly

a. Feed clutch

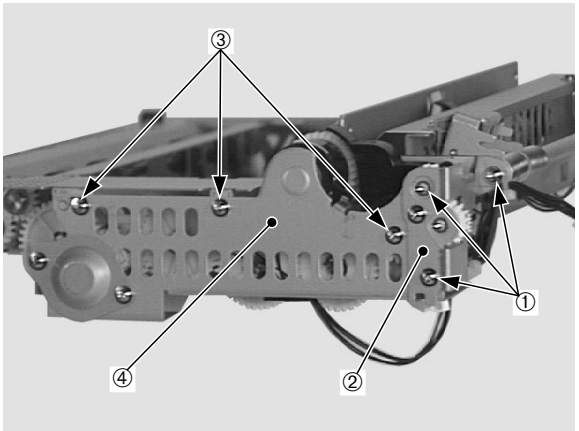
1) Remove the feed cover.
2) Remove the cable from the band.



① Cable bands ② Cable

Figure 3-11-20

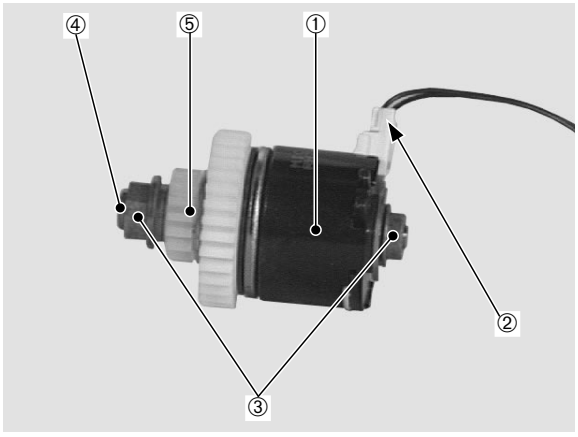
3) Remove the 3 screws and then the connecting plate.
4) Remove the 3 screws and then the gear side plate.



① Screws ② Connecting plate
③ Screws ④ Gear side plate

Figure 3-11-21

5) Remove the connector, 2 bushings, shaft, pin, and gear from the feed clutch.

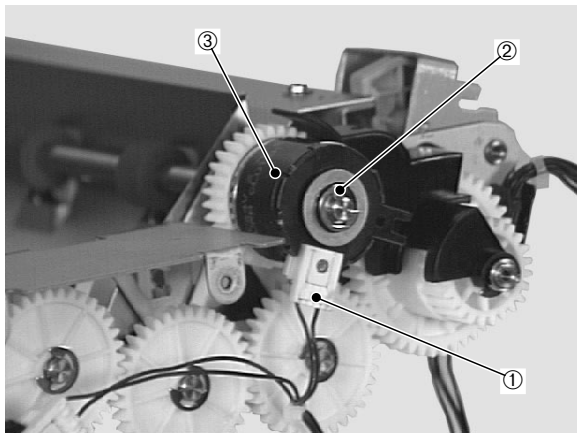


① Feed clutch
② Connector
③ Bushings
④ Shaft
⑤ Gear

Figure 3-11-22

b. Registration clutch

1) Remove the gear side plate by following steps 1 to 4 on page 3-56.
2) Remove the connector.
3) Remove the E-ring and then the registration clutch.

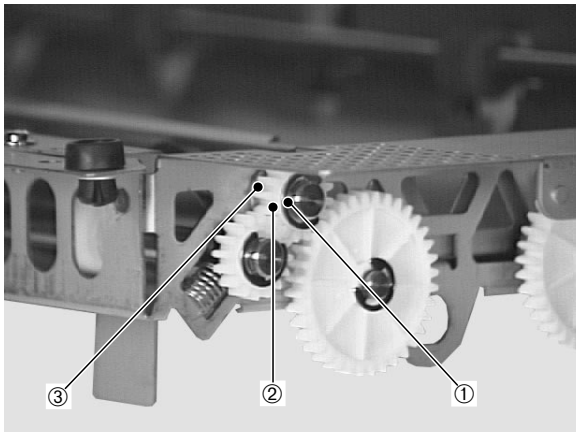


① Connector
② E-ring
③ Registration clutch

Figure 3-11-23

c. Feed roller

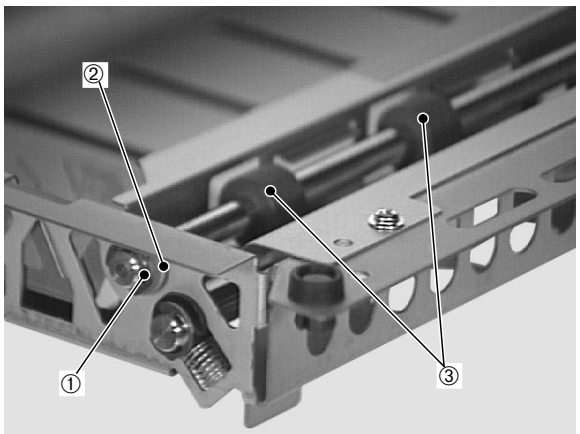
1) Remove the feed cluch by following steps 1 to 4 on page 3-58.
2) Remove the E-ring, gear, pin and bushing.



① E-ring ② Gear
③ Bushing

Figure 3-11-24

3) Remove the E-ring and bushing then the feed roller.

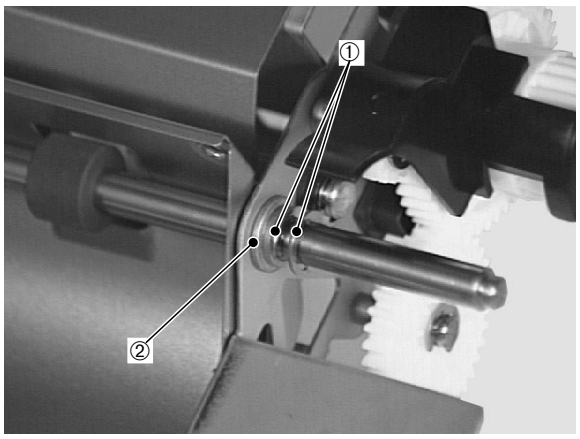


① E-ring ② Bushing
③ Feed roller

Figure 3-11-25

d. Registration roller

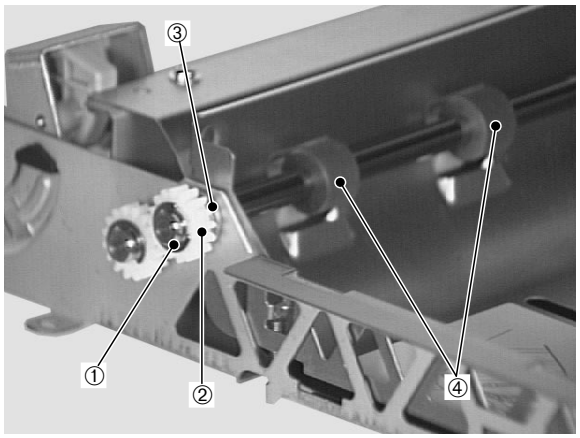
1) Remove the registration clutch by following steps 1 to 3 on page 3-59.
2) Remove the 2 E-rings and the bushing.



① E-rings ② Bushing

Figure 3-11-26

3) Remove the E-ring, gear, pin and bushing then the registration rollers.



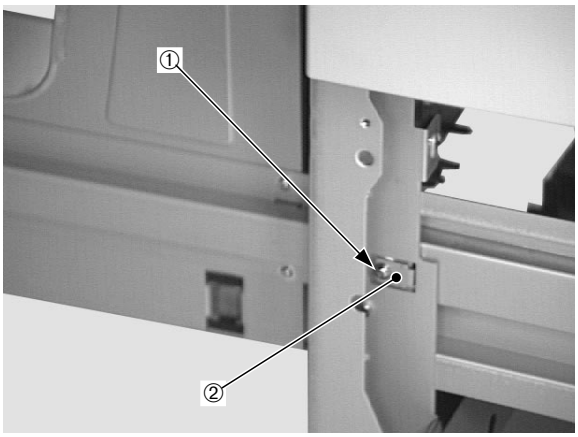
① E-ring ② Gear
③ Bushing ④ Registration rollers

Figure 3-11-27

F. Tray

1. Removal from the main unit

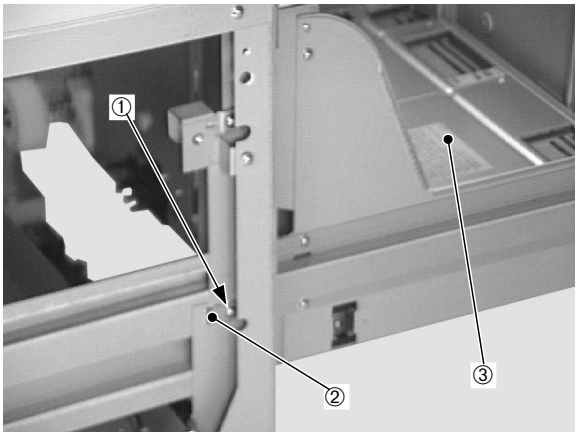
1) Remove the front cover.
2) Remove the right and left covers.
3) Remove the screw and the stopper.



① Screw ② Stopper

Figure 3-11-28

4) Remove the screw and stopper then take out the tray.



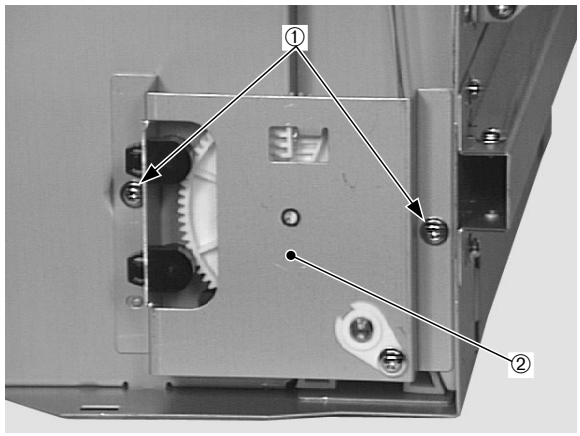
① Screw ② Stopper
③ Tray

Figure 3-11-29

2. Disassembly

a. Lifter

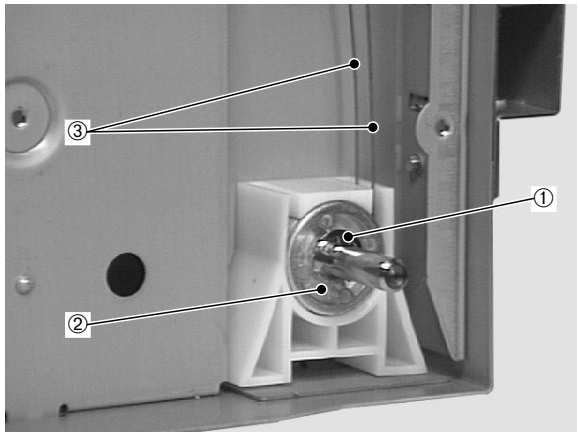
1) Remove the 2 screws, the damper, then the gear.



① Screws ② Damper

Figure 3-11-30

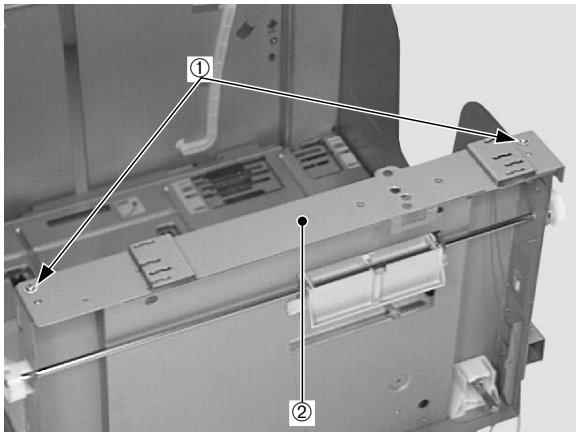
2) Remove the E-ring then the two pulleys.
3) Remove the wires from the pulleys.



① E-ring ② Pulleys
③ Wires

Figure 3-11-31

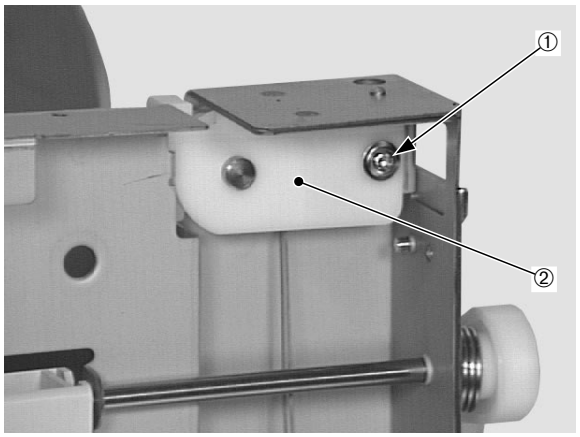
4) Remove the 2 screws then the reference plate.



① Screws ② Reference plate.

Figure 3-11-32

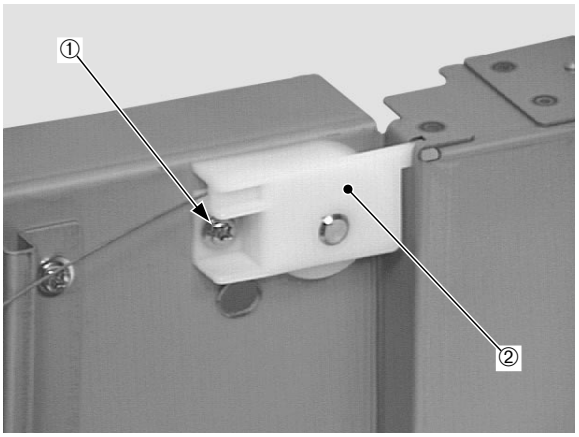
5) Remove the screw then the wire cover.



① Screw ② Wire cover

Figure 3-11-33

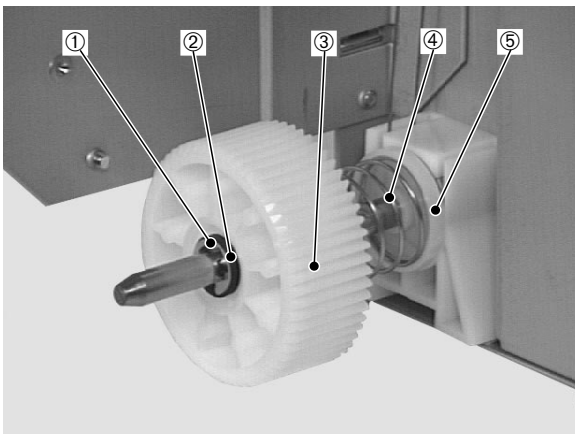
6) Remove the screw then the wire cover.



① Screw ② Wire cover

Figure 3-11-34

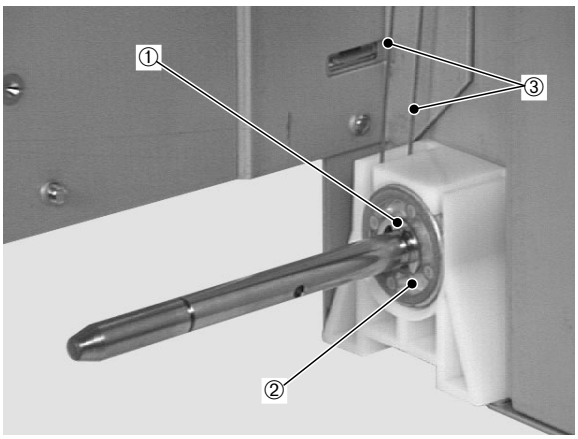
7) Remove the E-ring, the rubber ring then the gear.
8) Remove the spring, pin and spring stop.



① E-ring ② Rubber ring
③ Gear ④ Spring
⑤ Spring stop

Figure 3-11-35

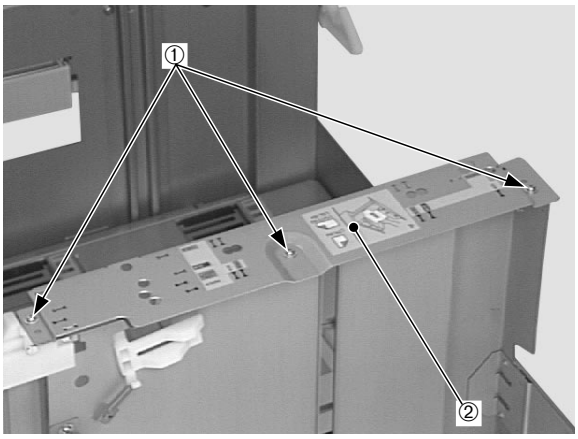
9) Remove the E-ring and the 2 pulleys.
10) Remove the wire from the pulleys.



① E-ring ② Pulleys
③ Wire

Figure 3-11-36

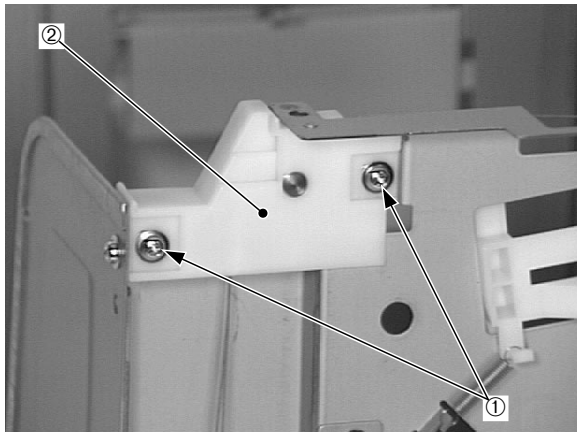
11) Remove the 3 screws then the reference plate.



① Screws ② Reference plate.

Figure 3-11-37

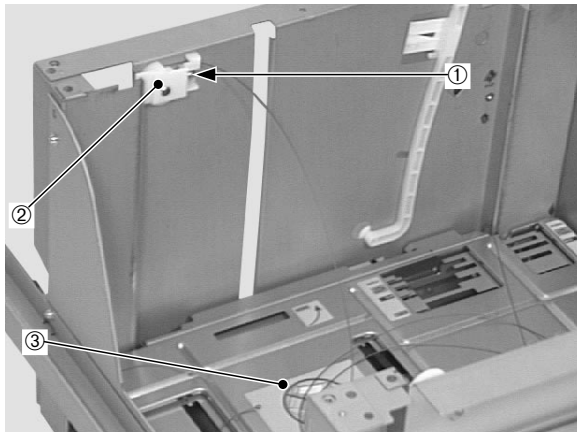
12) Remove the 2 screws and the wire cover.



① Screws ② Wire cover

Figure 3-11-38

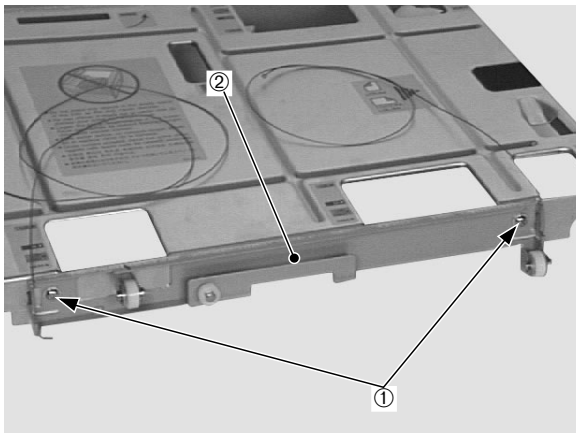
13) Remove the screw and the wire cover, then take out the tray.



① Screw ② Wire cover
③ Tray

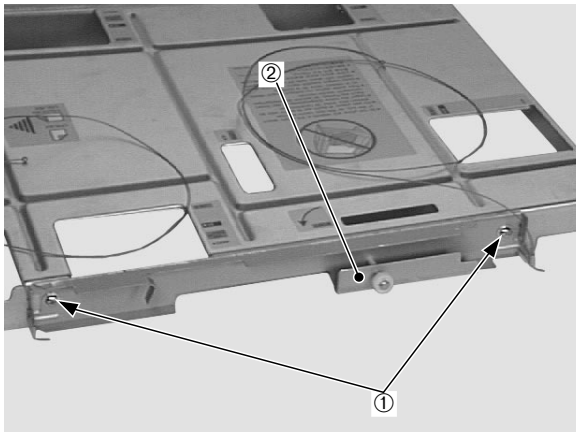
Figure 3-11-39

14) Remove the 2 screws from the tray, then remove either the front or rear wire units.



① Screws ② Front wire unit

Figure 3-11-40



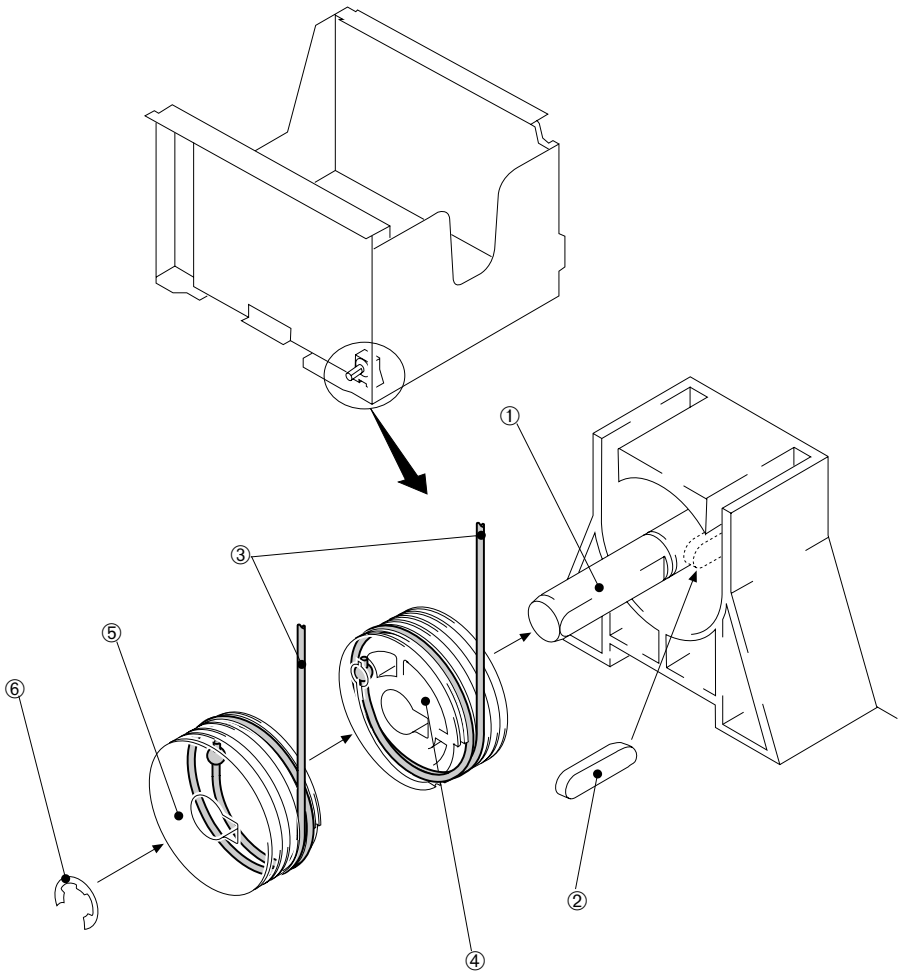
① Screws ② Rear wire unit

Figure 3-11-41

3. Assembly

a. Front wire

1) Insert the pulley alignment pin in the right side(looking from the front) of the shaft.
2) Wind the wire one and a half times starting from the second groove from the front of pulley 1 and insert it on to the shaft.
3) Wind the wire one and a half times starting from the second groove from the back of pulley 2 and insert it on to the shaft.
4) Secure the pulleys with the E-ring.

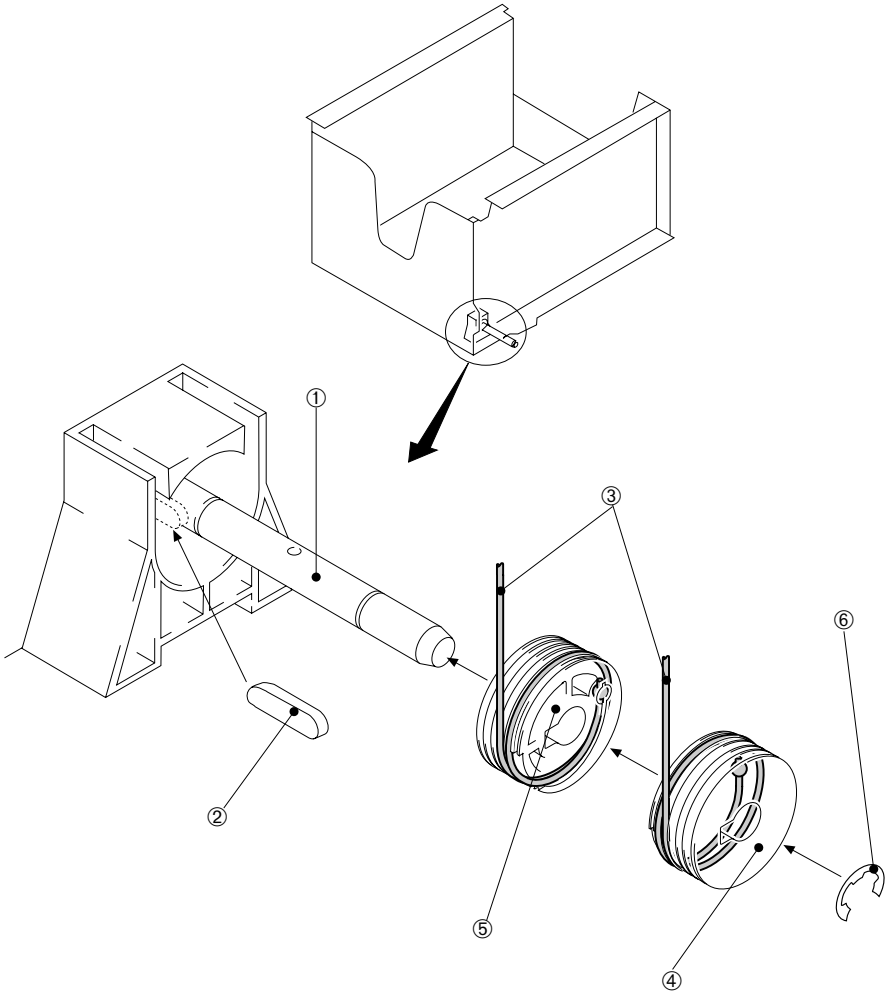


① Shaft
② Pulley alignment pin
③ Wires
④ Pulley 1
⑤ Pulley 2
⑥ E-ring

Figure 3-11-42

b. Rear wire

1) Insert the pulley alignment pin in the left side(looking from the front) of the shaft.
2) Wind the wire one and a half times starting from the second groove from the front of pulley 2 and insert it on to the shaft.
3) Wind the wire one and a half times starting from the second groove from the back of pulley 1 and insert it on to the shaft.
4) Secure the pulleys with the E-ring.



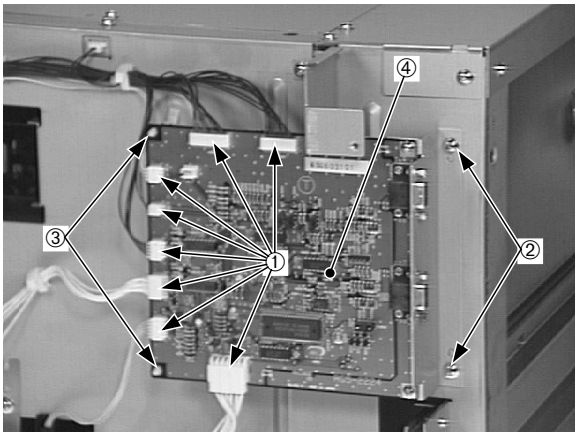
① Shaft
② Pulley alignment pin
③ Wires
④ Pulley 2
⑤ Pulley 1
⑥ E-ring

Figure 3-11-43

G. Paper Deck Driver PCB

1. Removal from the main unit.

1) Remove the left cover.
2) Remove the rear cover.
3) Take out the 8 connectors.
4) After removing the 2 screws and the 2 PCB holding pins take out the paper deck driver PCB.



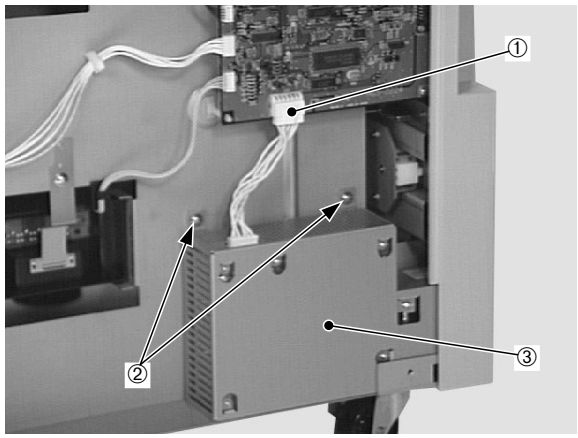
① Connectors
② Screws
③ Holding pins
④ Paper deck driver PCB

Figure 3-11-44

H. Power Supply

1. Removal from the main unit.

1) Take off the rear cover.
2) Remove the connector and 2 screws, then take out the power supply by slightly lifting its left side.



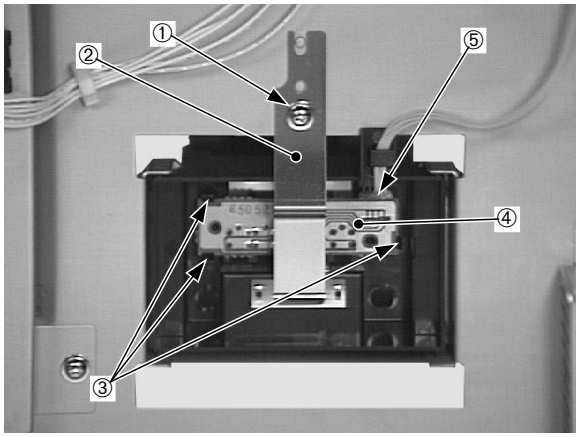
① Connector ② Screws
③ Power supply

Figure 3-11-45

I. Paper-size Sensing Switch PCB

1. Removal from the main unit.

1) Remove the rear cover.
2) Pull out the tray.
3) Remove the screw and the PCB base plate.
4) Undo the 3 claws, then remove the paper-size sensing switch PCB followed by the connector.



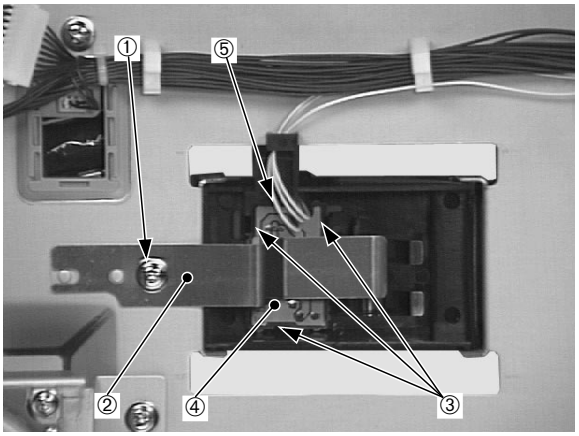
① Screw
② PCB base plate
③ Claws
④ Paper-size sensing switch PCB
⑤ Connector

Figure 3-11-46

J. Paper-level Sensing Switch PCB

1. Removal from the main unit.

1) Remove the rear cover.
2) Pull out the tray.
3) Remove the screw and then the PCB base plate.
4) Undo the 3 claws, then remove the paper-level sensing switch PCB followed by the connector.



① Screw
② PCB base plate
③ Claws
④ Paper-level sensing switch PCB
⑤ Connector

Figure 3-11-47

CHAPTER 4

TROUBLESHOOTING

I. MAINTENANCE AND SERVICING 4-1
II. TOOLS 4-5
III. MEASUREMENT AND ADJUSTMENT 4-14
IV. INITIAL CHECK 4-18
V. IMAGE DEFECTS 4-19
VI. MALFUNCTION TROUBLESHOOTING 4-28
VII. PAPER FEEDING TROUBLESHOOTING 4-47
VIII. LOCATION OF ELECTRICAL PARTS/FUNCTION 4-54
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X. LIST OF LUBRICANTS, CLEANERS 4-78

I. MAINTENANCE AND SERVICING

A. Periodic Replacement Parts

None

Note: Periodic replacement parts are parts that must be replaced at regular intervals, even if they are functioning properly and show no signs of wear. (Failure of these parts can seriously affect system performance.) These parts should be replaced during a regular service visit closest to the end of the parts expected life.

B. Expected Lives of Consumable Parts

The following table of consumables may require, over the warranty period of the printer. Replacement once or more due to deterioration or damage. The estimated life of consumable parts are shown by the number of prints made; these parts should be replaced when faulty.

Table 4-1-1

● Printer

As of November , 1997

No.	Part name	Part No.	Qt'y	Expected life	Remarks
1	Manual feeding pick-up roller	RB1-6730-000	1	200,000 prints	Replace the manual feeding pick-up roller and separation pad together.
2	Separation pad	RF5-1455-000	1	200,000 prints	
3	Fixing unit	RG5-1863-200	1	350,000 pages*	100-120V
		RG5-1871-190	1	350,000 pages*	220-240V
4	Transfer charging roller	RF5-1412-000	1	350,000 pages*	
5	Feed roller and separation roller	RF5-1834-000	4	350,000 prints	For both upper and lower rollers. Replace the feed rollers and separation rollers together.
6	Power supply fan and fixing unit/scanner fan	RH7-1266-000	2	25,000 hours	
7	Electrical unit fan	RH7-1271-000	1	25,000 hours	
8	Fixing unit fan	RH7-1289-000	1	25,000 hours	

*: 2 pages are counted as 1 print in case of duplexing.

● Paper Deck

No.	Part name	Part No.	Qt'y	Expected life	Remarks
1	Feed roller and separation roller	RF5-1834-000	2	350,000 prints	Replace the feed rollers and separation rollers together.

Note: The values above are only estimates based on part data, and are subject to change.

C. Periodic Servicing Schedule

None

D. Service Checkpoints

1. Printer

a. Cartridge

• Photosensitive drum

As a rule, do not touch or clean the drum. When cleaning is unavoidable, never use solvents. Do not expose to light. For details, see Chapter 3.

b. Manual feeding pick-up roller, cassette pick-up roller, separation roller, and feed roller

Clean with lint-free paper, either dry or moistened with ethyl/isopropyl alcohol. Replace if badly worn.

c. Separation pad

Clean with lint-free paper.

d. Registration roller unit

Clean with lint-free paper. If badly contaminated, use it with ethyl/isopropyl alcohol for rubber parts and MEK(methyl ethyl ketone) for other parts. Avoid skew or paper jams caused by removal of the springs.

e. Transfer guide unit

Clean with soft, dry flannel cloth.

f. Transfer charging roller

Clean only when badly contaminated. Never use water or solvent. Do not touch the roller or allow any solvent or oil to deposit on the surface. For details, see Chapter 3.

g. Static charge eliminator

Clean with brush.

h. Feed guide unit

Clean with lint-free paper.

i. Fixing unit

• Fixing entry guide

Clean with lint-free paper moistened with MEK.

• Fixing separation guide

Clean lightly with lint-free paper moistened with MEK, only to remove the toner deposit.

• Fixing separation claw

Clean lightly with lint-free paper moistened with MEK, only to remove the toner deposit.

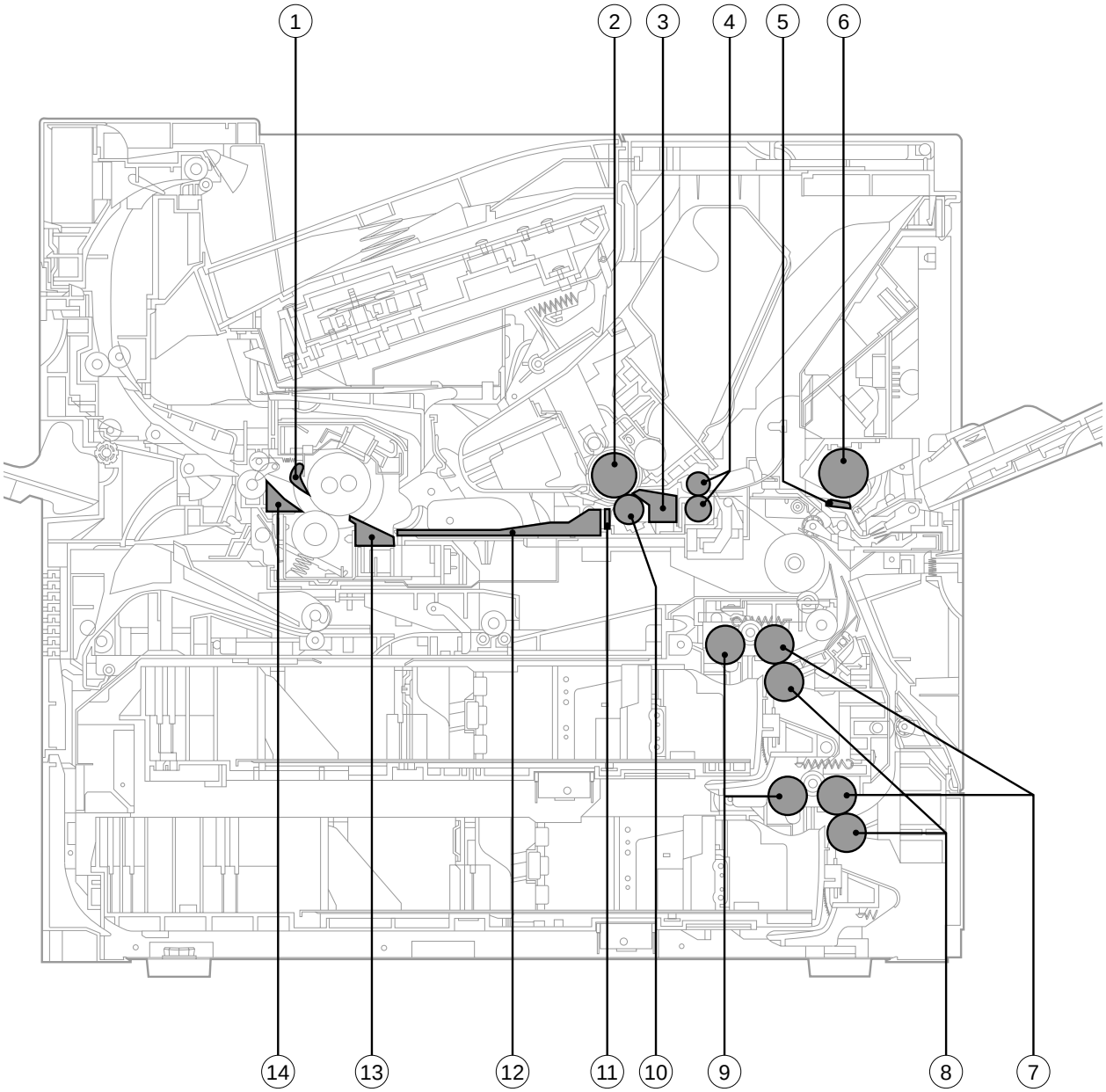


Figure 4-1-1

1: Fixing separation claw
2: Photosensitive drum
3: Transfer guide
4: Registration roller unit
5: Separation pad
6: Manual feeding pick-up roller
7: Feed roller
8: Separation roller
9: Pick-up roller
10: Transfer charging roller
11: Static charge eliminator
12: Feed guide
13: Fixing entry guide
14: Fixing separation guide

2. Paper deck (Option)

a. Pick-up roller, separation roller, and feed roller

Clean with lint-free paper, either dry or moistened with ethyl/isopropyl alcohol. Replace if badly worn.

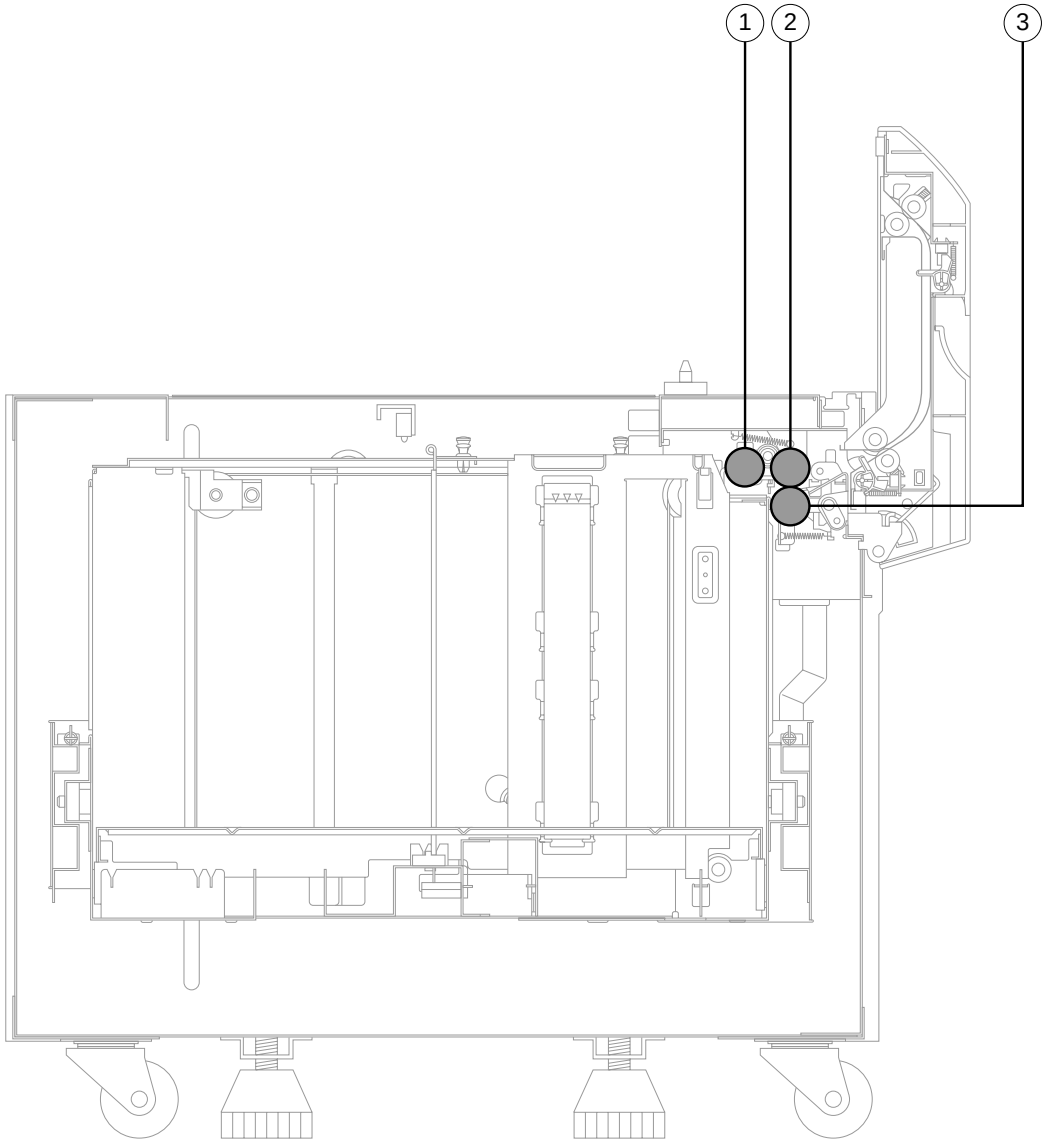


Figure 4-1-2

1: Pick-up roller
2: Feed roller
3: Separation roller

II. TOOLS

A. Standard Tools

The standard tools required for servicing the printer are listed below.

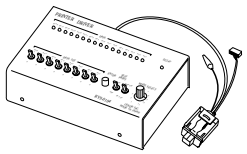
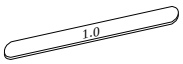
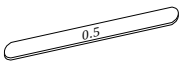
Table 4-2-1

No.	Tool name	Tool No.	Remarks
1	Tool case	TKN-0001	
2	Jumper wire	TKN-0069	With clips
3	Thickness gauge	CK-0057	0.02 mm to 0.3 mm
4	Compression spring scale	CK-0058	For checking cassette spring strength (0-600 g)
5	Phillips screwdriver	CK-0101	M4, M5 length: 363mm
6	Phillips screwdriver	CK-0104	M3, M4 length: 155mm
7	Phillips screwdriver	CK-0105	M4, M5 length: 191mm
8	Phillips screwdriver	CK-0106	M4, M5 length: 85mm
9	Flat-blade screwdriver	CK-0111	
10	Precision flat-blade screwdriver set	CK-0114	Set of 6
11	Allen wrench set	CK-0151	Set of 5
12	File, fine	CK-0161	
13	Allen (hex) screwdriver	CK-0170	M4 length: 107mm
14	Diagonal cutting pliers	CK-0201	
15	Needle-nose pliers	CK-0202	
16	Pliers	CK-0203	
17	Retaining ring pliers	CK-0205	For shaft rings
18	Crimper	CK-0218	
19	Tweezers	CK-0302	
20	Ruler	CK-0303	150 mm (for measuring)
21	Soldering iron	CK-0309	100 V, 30 W
22	Mallet, plastic head	CK-0314	
23	Brush	CK-0315	
24	Penlight	CK-0327	
25	Plastic bottle	CK-0328	100cc
26	Solder	CK-0329	Ø1.5 (mm) x 1 (m)
27	Desoldering wick	CK-0330	1.5 mm
28	Lint-free paper	CK-0336	500 SH/PKG
29	Soldering iron	CK-0348	240 V, 30 W
30	Oiler	CK-0349	30cc
31	Plastic jar	CK-0351	30cc
32	Digital multimeter	FY9-2032	

B. Special Tools

In addition to the standard tools, the following special tools are required when servicing the printer.

Table 4-2-2

No.	Tool name	Tool No.	Shape	RANK	Application/remarks
1	Printer driver tester	RY9-0104		B	Used for checking printer operations.
2	Thickness gauge	RY9-0088		A	Used for installing the separation guide of the optional envelope feeder.
3	Thickness gauge	QY9-0001		A	

Note: Ranks

A: Tools used for part replacements or adjustment of parts on-site.

B: Tools used on-site and in regions.
This category incudes tools for useful failure analysis, and tools which are difficult to carry around.

C: Tools used in the workshop.
This category mainly includes tools for PCB and unit repairs.

C. Special Tools Explanation
Printer Driver Tester

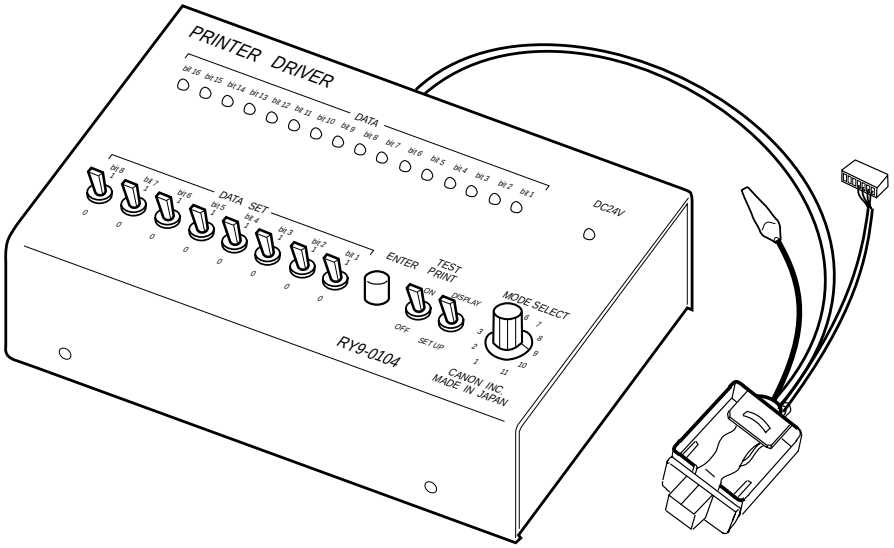


Figure 4-2-1

1. Outline

The tester runs the printer independently to test printer operations. It has three uses which are outlined below;

a. Commands the printer to print out solid black, horizontal lines, vertical lines and solid blank images. It can also select the pick-up and delivery trays.
b. Monitors the status of the sensors, and forcibly operates the various solenoids and motors.
c. In the event of a printer failure, the error information sent from the printer to the video controller (external device) can be displayed on the tester LED.

Note: This manual covers the basic operation of the printer driver tester. For a move defailed explanation please refer to the operation manual attached to the tester.

---

2. Operation Panel

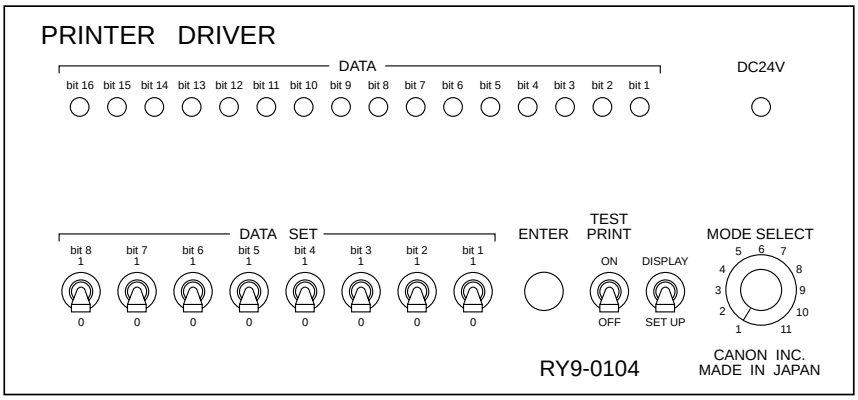

PRINTER DRIVER
DATA
bit 16 bit 15 bit 14 bit 13 bit 12 bit 11 bit 10 bit 9 bit 8 bit 7 bit 6 bit 5 bit 4 bit 3 bit 2 bit 1
DC24V
DATA SET
bit 8 bit 7 bit 6 bit 5 bit 4 bit 3 bit 2 bit 1
ENTER
TEST PRINT
ON
OFF
DISPLAY
SET UP
MODE SELECT
RY9-0104
CANON INC.
MADE IN JAPAN

Figure 4-2-2

DATA LED
Monitors the status of the various loads and sensors sent from the printer with the 16 LEDs.
+24VA LED
Lights up when +24VA is being supplied to the tester.
TEST PRINT switch
When set to "ON", test patterns set by the DATA SET are printed.
MODE SELECT switch
To select the various modes. See table 4-2-3.
DISPLAY/SET UP switch
Switches between DISPLAY and SET UP.
DISPLAY: Mode to display the status of the various sensors and loads sent from the printer with the DATA LED.
SET UP: Mode to set data with the DATA SET switch.
DATA SET switch
Sets the various data sent from the printer. See DATA SET in table 4-2-3.
ENTER switch
Inputs data set by the DATA SET switch.

Table 4-2-3

DISPLAY /SET UP / Mode	DISPLAY (displays the status of the sensors and loads sent from the printer)	SET UP (sets up various data sent from the printer)
1	Operator call/ service call	————
2	Service call/ misprint details/ warning	Print density select
3	Pick-up unit configuration/ select pick-up unit/ pick-up unit paper-out	Ready inhibit/ forced laser emission/ sleep setting
4	Sensor status	————
5	Select paper size/ select print density	Multi-purpose tray paper size select
6	————	————
7	Upper/ lower cassette paper size detection data	————
8	Cause of paper jam/ fan malfunction details	Test print paper pick-up/ delivery slot allocation/ pattern setting
9	Paper transportsystem electrical parts status	Paper transport system electrical parts drive 1
10	Motor status	Paper transport system electrical parts drive 2
11	————	Paper transport system electrical parts drive 3

3. Connector Signal Chart

Table 4-2-4

Connector 1			Connector 2		
Pin No.	Signal name	Function	Pin No.	Signal name	Function
J1-1	+24VA	+24VA	J2-1	N. C.	Reserved
J1-2	IN	Serial line (input)	J2-2	N. C.	Reserved
J1-3	OUT	Serial line (output)	J2-3	N. C.	Reserved
J1-4	GND	GND	J2-4	GND	GND
			J2-5	OUT	Serial line (output)
			J2-6	IN	Serial line (input)
			J2-7	+24VA	+24VA

4. Operation Method

a. Preparation

1) Switch OFF the printer.
2) Connect the tester to the envelope feeder connector (J24) in the printer.
3) Turn ON the printer.
4) When the printer is in standby mode, start performing checks with the tester.

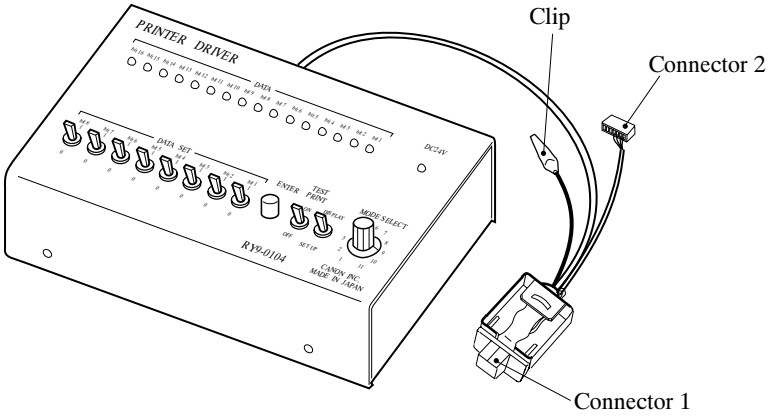


Figure 4-2-3

Note: When operating the printer driver tester, electrostatic energy can cause operation failures. Therefore, when connecting the tester be sure to touch a metal part of the printer with your hand to discharge any electrostatic energy.

< Follow the procedure below when checking envelope feeder operations >

1) Turn the printer power OFF.
2) Remove the rear cover. (See Chap. 3 of the Service Manual.)
3) Connect the tester connector 2 to connector (J212) on the DC controller PCB.
4) Attach the clip to a metallic part of the printer.
5) Turn the printer power ON after installing the envelope feeder in the printer.
6) When the printer has entered standby mode, use the tester to check operations.

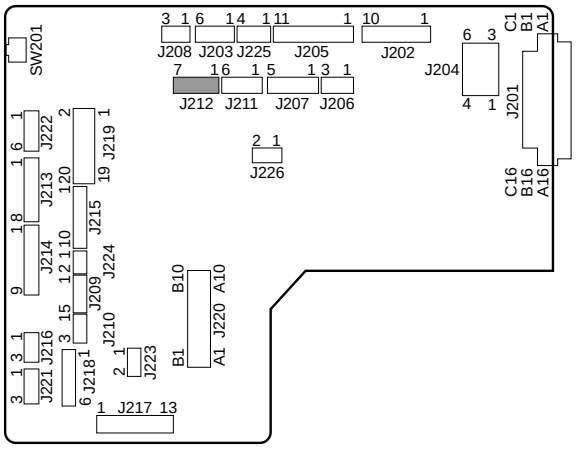


Figure 4-2-4

b. Confirming Printer Status

Select DISPLAY with the DISPLAY/SET UP switch, tests can be made with the DATA display (see table 4-2-3).

For example, when testing the contents of operator call/ service call, follow the directions below.

1) After the printer has entered standby mode, set the DISPLAY/SET UP switch to "DISPLAY".
2) Set the MODE SELECT to "1".
3) Look up the corresponding chart for the bit that is lit up by a DATA LED.

For example, when a fixing unit failure occurs, the LED of bit 16 will light up.

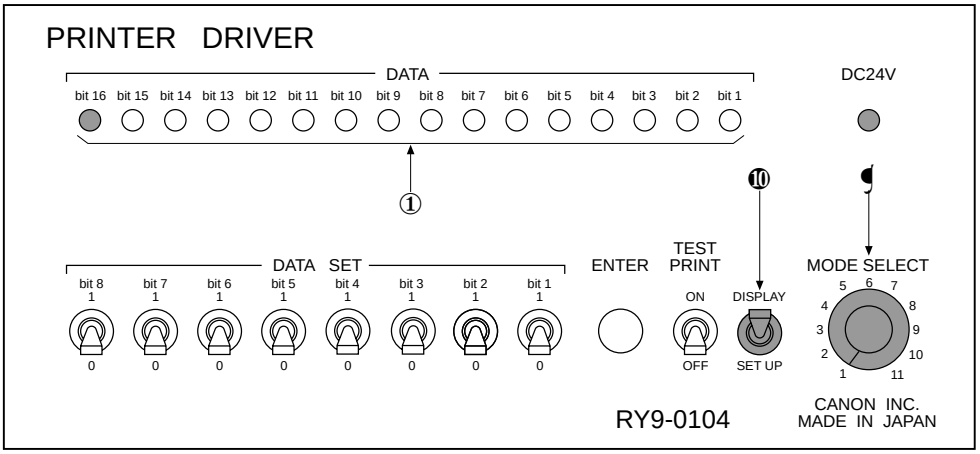

PRINTER DRIVER
DATA
bit 16 bit 15 bit 14 bit 13 bit 12 bit 11 bit 10 bit 9 bit 8 bit 7 bit 6 bit 5 bit 4 bit 3 bit 2 bit 1
DC24V
DATA SET
bit 8 bit 7 bit 6 bit 5 bit 4 bit 3 bit 2 bit 1
ENTER
TEST PRINT
ON
OFF
DISPLAY
SET UP
MODE SELECT
RY9-0104
CANON INC.
MADE IN JAPAN

Figure 4-2-5

Table 4-2-5

Mode select 1

	bit	Display Content Details/ Set Up Content Details
DISPLAY	16	Fixing unit malfunction
	15	BD malfunction
	14	Laser malfunction
	13	Main motor malfunction
	12	Scanner motor malfunction
	11	Fan motor malfunction
	10	————
	9	Lifting plate malfunction
	8	Side registration guide malfunction
	7	————
	6	Misprint
	5	Cartridge-out
	4	Paper-out
	3	Door open
	2	Jam
	1	Printer ready
SET UP	8	————
	7	————
	6	————
	5	————
	4	————
	3	————
	2	————
	1	————

c. Itemize the Data Set

Select SET UP with the DISPLAY/SET UP switch. Various settings and commands can be made according to the DATA SET (see table 4-2-3).

For example, when commanding a test print pick-up, delivery tray allocation or pattern setting operation, follow the steps below by operating the the tester. (when you want to have paper picked-up from the multi-purpose tray, duplex-print a horizontal line test print pattern and deliver it through the face up tray.)

1) When the printer has entered standby mode, set the DISPLAY/SET UP switch on the tester to "SET UP".
2) Set the MODE SELECT to "8".
3) Set DATA SET switch bit 8 to 0, bit 7 to 1, bit 6 to 0, bit 5 to 0, bit 4 to 1, bit 3 to 1, bit2 to 0 and bit 1 to 1 (see Table 4-2-6).
4) Press the ENTER switch.
5) By turning the TEST PRINT switch ON once, a test print can be made.

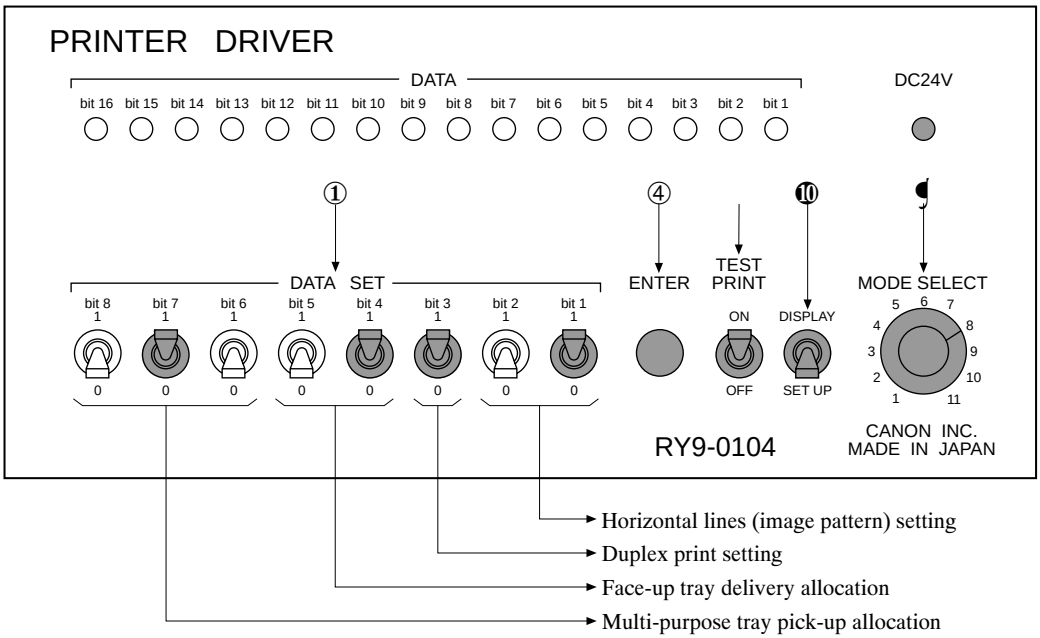

PRINTER DRIVER
DATA
bit 16 bit 15 bit 14 bit 13 bit 12 bit 11 bit 10 bit 9 bit 8 bit 7 bit 6 bit 5 bit 4 bit 3 bit 2 bit 1
DC24V
①
④
⑩
⑨
DATA SET
ENTER
TEST PRINT
MODE SELECT
bit 8 bit 7 bit 6 bit 5 bit 4 bit 3 bit 2 bit 1
1 1 1 1 1 1 1 1
0 0 0 0 0 0 0 0
ON
OFF
DISPLAY
SET UP
5 6 7 4 8 3 9 2 10 1 11
RY9-0104
CANON INC.
MADE IN JAPAN
Horizontal lines (image pattern) setting
Duplex print setting
Face-up tray delivery allocation
Multi-purpose tray pick-up allocation

Figure 4-2-6

Notes: **1.** After setting a test print in this mode, the data will remain the same even if the test print is set in another mode.
2. By keeping the TEST PRINT switch "ON", continuous test prints will be made.
3. When setting the image pattern to "All black", do not make duplex prints.

Table 4-2-6

Mode select 8

	bit	Display content details
	16	Initial residual jam
	2	Electrical unit fan malfunction
	1	Fixing unit fan malfunction

SET UP

Pick-up slot			Delivery slot		Print mode	Image pattern		
bit 8	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	
0	0	0						Lower cassette pick-up
0	0	1						Upper cassette pick-up
0	1	0						Multi-purpose tray pick-up
0	1	1						Envelope feeder pick-up
			0	0				Face-down tray delivery
			0	1				Face-up tray delivery
					0			Single side print
					1			Duplex print
						0	0	Vertical lines
						0	1	Horizontal lines
						1	0	All-white
						1	1	All-black

Mode select 3

	bit	Display Content Details/ Set Up Content Details
	16	Lights when the upper cassette pick-up function is ready in the printer
	2	Lights when there envelopes are loaded in the envelope feeder.
	1	Lights when paper present at the second-feed position
SET UP	8	RDYINH set **(Note 1)**
	7	————
	6	Forced laser emission
	5	————
	4	————
	3	Display panel light up test
	2	Sleep mode (1: deep mode, 0: nap mode) **(Note 2)**
	1	Sleep set **(Note 3)**

Table 4-2-7

Notes: 1. When performing the ready inhibit setting, set MODE SELECT to "3" and turn on the printer while pressing the ENTER switch.
2. Deep mode halts all drives. (stop +24V supply)
Nap mode halts all drives except the fan motor.
3. The sleep mode setting can not be released. When releasing, turn the printer power ON/OFF again.

III. MEASUREMENT AND ADJUSTMENT

A. Mechanical Adjustment

1. Checking the nip width of the fixing lower roller

The fixing unit is not designed to allow adjustment of the pressure (nip width). If the nip width is not correct, a fixing problem may occur.

Follow the procedure below to check the nip width.

1) Produce an all-black print using an EP-W cartridge, and take the print to the customer's premises. (Use the printer driver tester to output the all-black print.)
2) Put the all-black print in the lower cassette.
3) Press the TEST PRINT switch.
4) When the leading edge of the print emerges at the face-down tray, switch the printer OFF, wait for about 10 seconds, then switch the printer ON again. Deliver the paper from the printer.
5) Measure the width of the glossy band across the paper and check that it meets the requirements as shown in Figure 4-3-1.
   • Center (a): 4.8 ± 1.2 mm
   • Right and left sides (b): 5.3 ± 1.2 mm

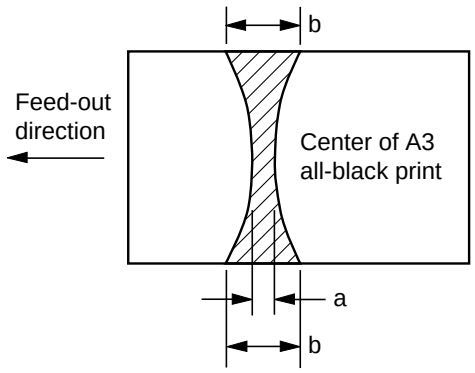


Figure 4-3-1

2. Installing the separation guide of the envelope feeder (Adjusting the gap between the separation guide and the lower separation roller)

Under normal conditions, remove the separation guide along with the upper cover. If you removed just the separation guide or replaced a bent separation guide, adjust the gap as follows.

Install the separation guide 1.5 mm from the lower separation roller. Adjust its position by inserting the thickness gauges (1 mm and 0.5 mm) into the gap between the separation guide and the lower separation roller.

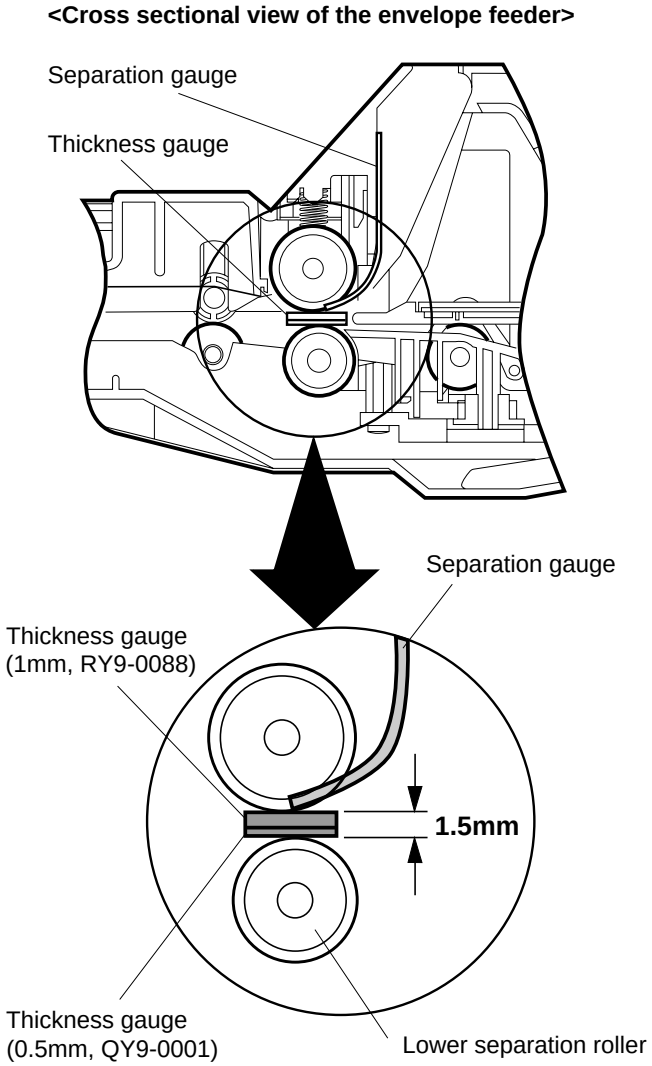


Figure 4-3-2

3. Side Registration Adjustment of the Cassette

When the side registration of the cassette is not aligned, you need to make this adjustment.
The side adjustment registration levers (see figure 4-3-3) in the upper and lower cassettes are adjusted in the factory. Therefore, there is no need to make any adjustments when installing the machine. However, in the event that either the upper or lower cassette needs replacing in the field, re-adjustment of the margins on left side is necessary. This procedure is outlined below.

1) Load 20 - 30 sheets of paper into the cassette. Then, using the printer driver tester, print several pages of all-black or horizontal line test prints.
2) Measure the distance (a) between the left edge of the page to the edge of the printed pattern (see figure 4-3-3). Measure several test prints to find the average distance.
3) Move the side registration adjustment lever so that the distance measured in step 2) is 3.0mm. (one notch alters length (a) by 0.5mm)
   For example, if the average length of step 2) is 4.0mm, by moving the lever 2 steps clockwise the necessary adjustment of 1.0mm can be made.
4) Make several more test prints. Make sure that the margin on left side is 3.0mm by repeating

step 2) above.
If the margin needs further adjustment repeat steps 1) to 3) again.

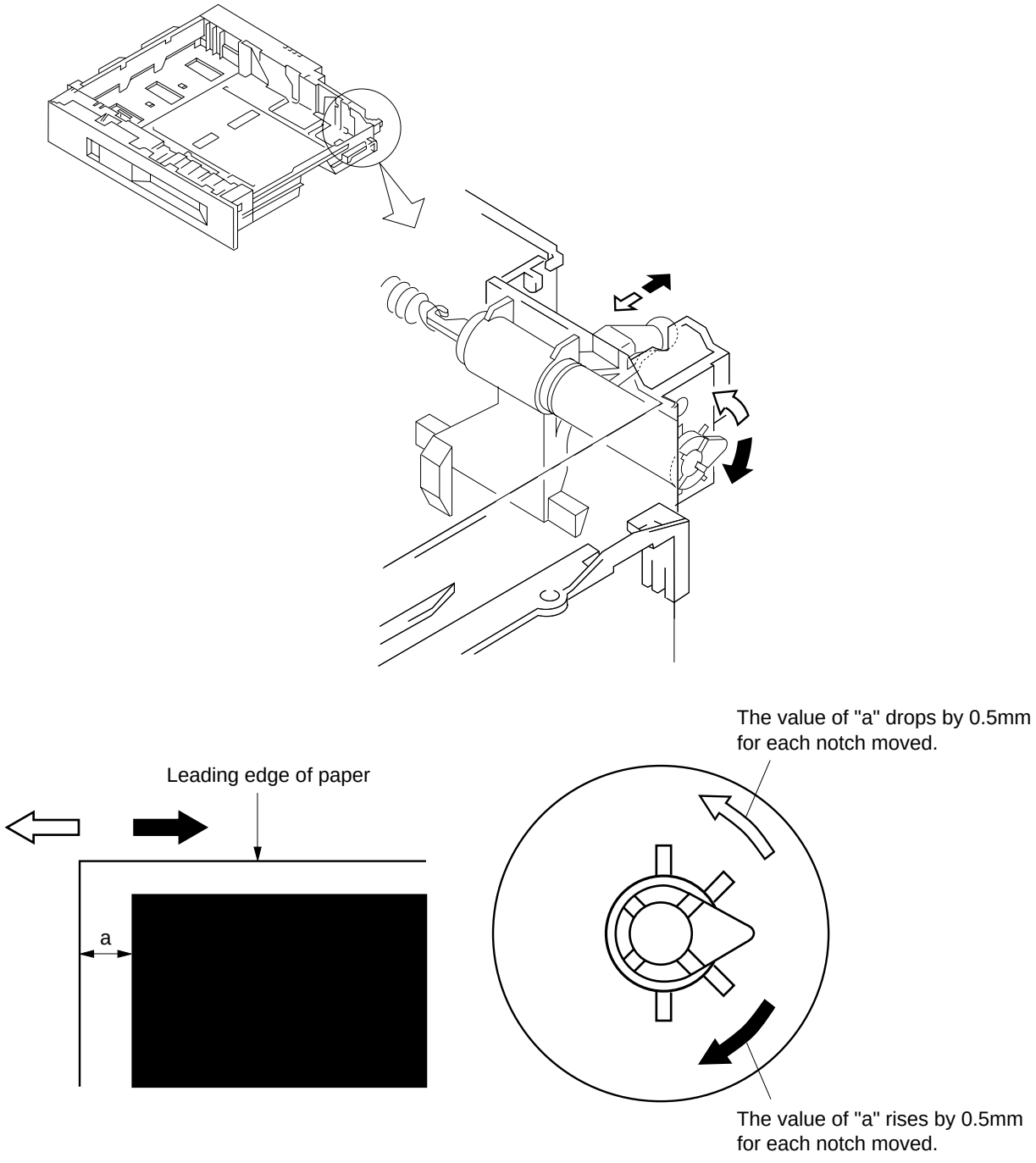


Figure 4-3-3

B. Electrical Adjustment

The printer does not require electrical adjustment in the field.

IV. INITIAL CHECK

1. Installation environment

Make sure that the printer conforms to the following environment standards:

a. The power supply voltage is ±10% of the rated voltage.
b. The printer is securely installed on a level surface.
c. The room temperature is kept between 10°C and 32.5°C, and the relative humidity, between 20% and 80%.
d. Avoid sites generating ammonia gas, high temperature or high humidity (near water faucets, kettles, humidifiers), cold spaces, near open flames, and dusty areas.
e. Avoid sites exposed to direct sunlight. If unavoidable, advise the hanging of curtains.
f. A well-ventilated place.

2. Print paper checks

a. Check that the recommended paper for this printer is being used.
b. Check that the paper is not damp.
   Make a trial print with paper from a newly opened package, and check the results.

3. EP-W cartridges

If blank spots appear on an output image, there is a chance that the toner is not even. Rock the toner cartridge as shown in Chap. 1 and make a print to check that it has evened out.

4. Other

During winter, particularly when moving the printer into a warm room from a cold location such as a warehouse, various problems can occur due to condensation in the printer if immediately unpacked.

For example:

a. Condensation in the optical system (Six-faced mirror, mirror, lens, etc.) will result in the output of light images.
b. The photosensitive drum is cold, so resistance of the photoconductive layer will rise. This will lead to a loss of contrast.

If condensation appears, either wipe the parts with a dry cloth, or leave the printer running for 10 to 20 minutes.

If a packaged EP-W cartridge is opened soon after being moved from a cold room to a warm room, condensation will appear inside the cartridge; this can cause various image defects.

In such cases, be sure to instruct the customer that it is necessary to leave the cartridge sealed for one to two hours at room temperature to allow it to acclimatize.

V. IMAGE DEFECTS

A. Test Print

This printer is capable of executing test prints of two types: engine test print and controller test prints.
When an image defect appears, a test print can be made to identify the problem.

1. Engine test print

Test print patterns of horizontal lines are printed in this test print. The test prints can be made by using the printer driver checker which can make all four test patterns (vertical lines, horizontal lines, solid black and solid white), or the test print switch located on the right side of the printer (see Figure 1-4-1).
One print of test pattern can be made by pressing the switch once when the power is turned ON and the "READY" appears on the display. If the switch is held down, test prints are made continuously.
Make sure that paper is loaded into the lower cassette before pressing the switch as this is where the paper is fed from.

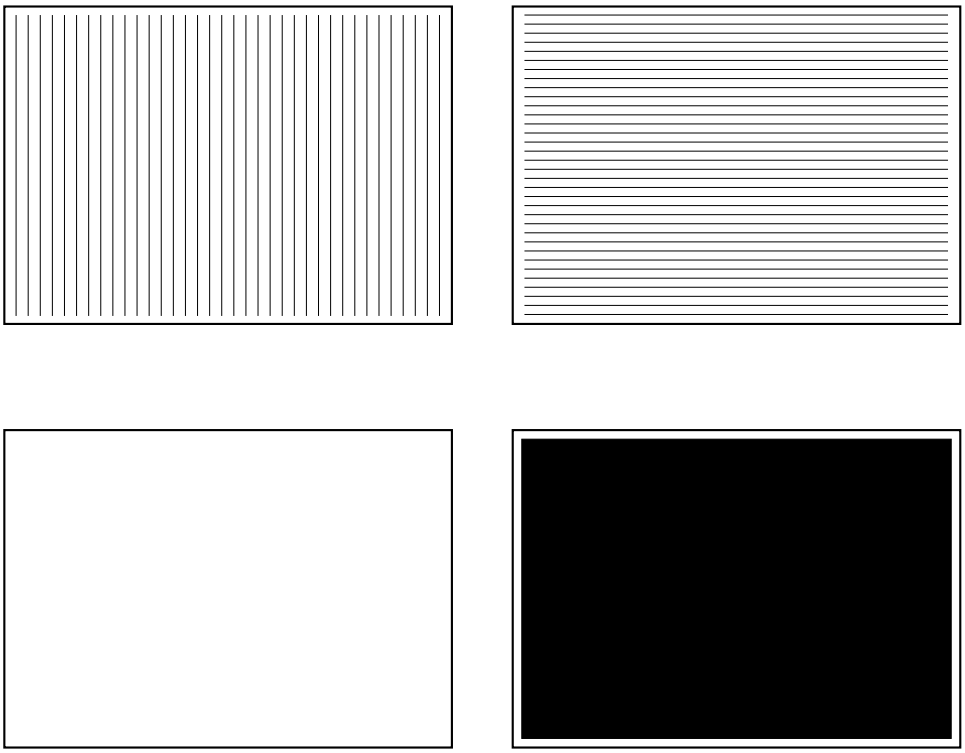
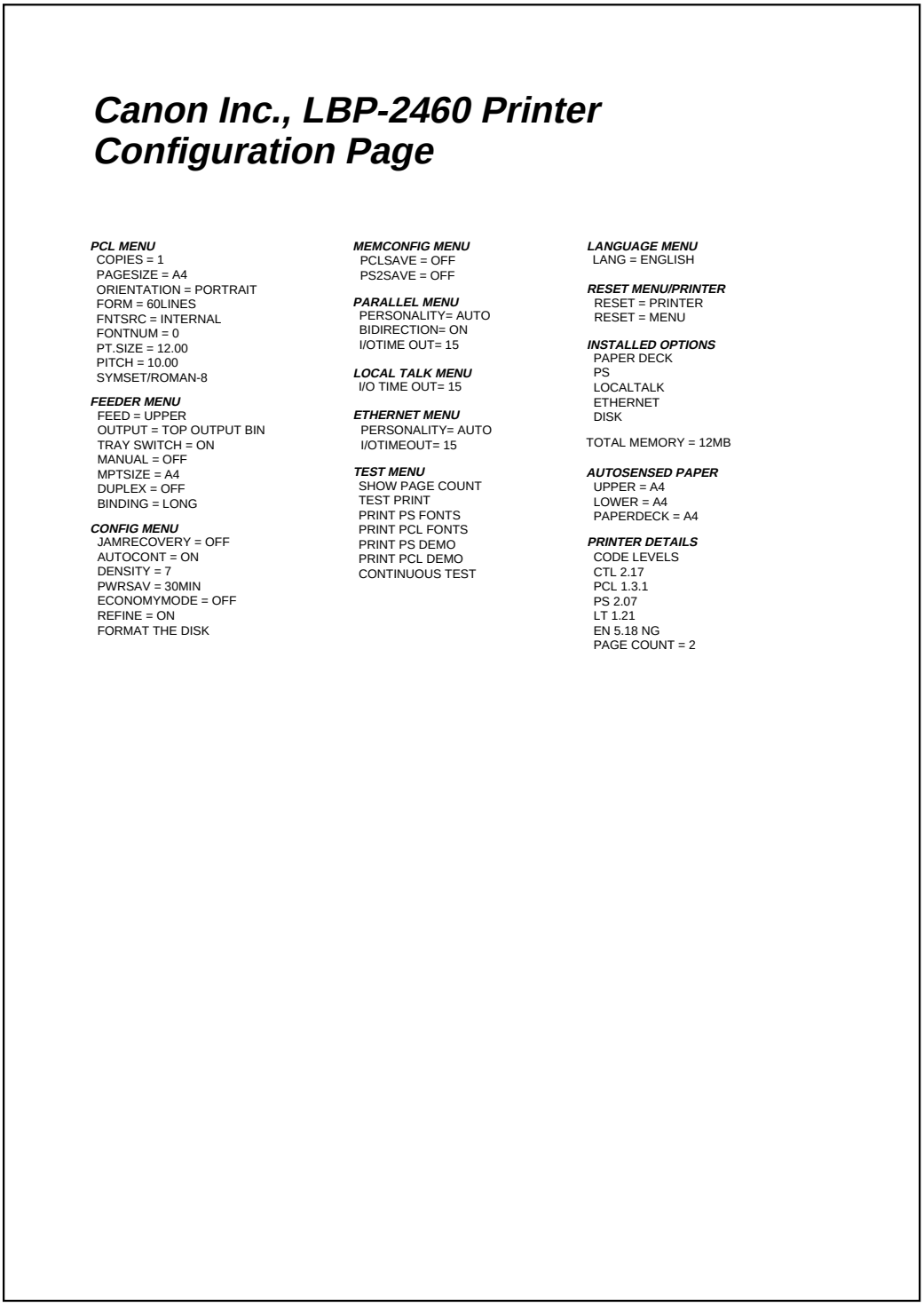


Figure 4-5-1

a. Test print procedures

1) Press the ON LINE key to set the printer off line.
2) Press the MENU key so that "TEST" appears on the display.
3) Press the ITEM key so that "TEST PRINT" appears on the display. Then press the ENTER key to print a sheet of the pattern shown below.



Canon Inc., LBP-2460 Printer
Configuration Page

PCL MENU
COPIES = 1
PAGESIZE = A4
ORIENTATION = PORTRAIT
FORM = 60LINES
FNTSRC = INTERNAL
FONTNUM = 0
PT.SIZE = 12.00
PITCH = 10.00
SYMSET/ROMAN-8

FEEDER MENU
FEED = UPPER
OUTPUT = TOP OUTPUT BIN
TRAY SWITCH = ON
MANUAL = OFF
MPTSIZE = A4
DUPLEX = OFF
BINDING = LONG

CONFIG MENU
JAMRECOVERY = OFF
AUTOCONT = ON
DENSITY = 7
PWRSAV = 30MIN
ECONOMYMODE = OFF
REFINE = ON
FORMAT THE DISK

MEMCONFIG MENU
PCLSAVE = OFF
PS2SAVE = OFF

PARALLEL MENU
PERSONALITY= AUTO
BIDIRECTION= ON
I/OTIME OUT= 15

LOCAL TALK MENU
I/O TIME OUT= 15

ETHERNET MENU
PERSONALITY= AUTO
I/OTIMEOUT= 15

TEST MENU
SHOW PAGE COUNT
TEST PRINT
PRINT PS FONTS
PRINT PCL FONTS
PRINT PS DEMO
PRINT PCL DEMO
CONTINUOUS TEST

LANGUAGE MENU
LANG = ENGLISH

RESET MENU/PRINTER
RESET = PRINTER
RESET = MENU

INSTALLED OPTIONS
PAPER DECK
PS
LOCALTALK
ETHERNET
DISK

TOTAL MEMORY = 12MB

AUTOSENSED PAPER
UPPER = A4
LOWER = A4
PAPERDECK = A4

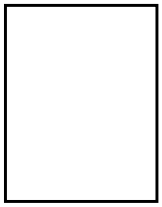
PRINTER DETAILS
CODE LEVELS
CTL 2.17
PCL 1.3.1
PS 2.07
LT 1.21
EN 5.18 NG
PAGE COUNT = 2

Figure 4-5-2

B. Examples of Image Defects (The paper is fed vertically.)

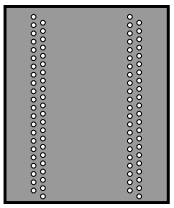
I-1 Light

I-2 Dark

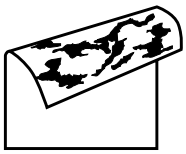


I-3 Completely blank

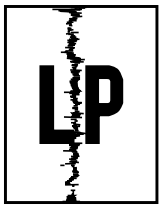
I-4 All black

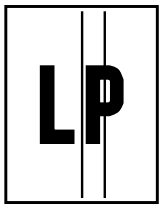


I-5 Dots vertically in a line



I-6 Dirt on back of paper

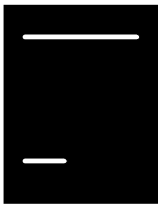


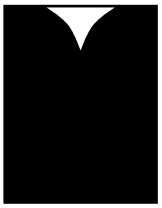


I-7 Vertical streaks/lines

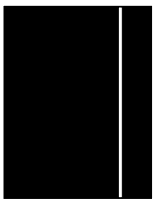
I-8 Smudged horizontal bands

I-9 Dirty

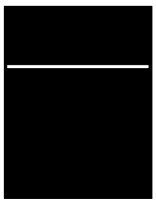




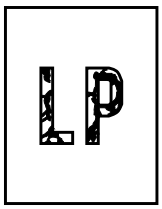
I-10 Blank spots



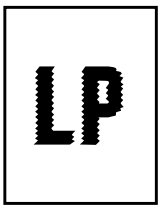
I-11 White vertical lines



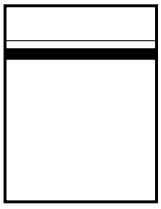
I-12 White horizontal lines



I-13 Poor fixing



I-14 Image distortion



I-15 Sharp black horizontal lines (BD error/BD failure)

Figure 4-5-3

C. Image Defect Troubleshooting

I-1 Light

<Possible causes>

1. The image density is not adjusted correctly.
   Action: Adjust the image density by operating the external device.

2. Lack of toner
   Action: Replace the cartridge.

3. Open the upper cover and remove the EP-W cartridge while a print is being made. Open the drum protective shield of the EP-W cartridge and check the toner image on the photosensitive drum. If the toner image was not been transferred to the paper properly, go to step 4. If the toner image on the drum is faint, go to step 7.
   Do not open the drum protective shield for more than 10 seconds.

4. Print paper
   Action: Replace the print paper. Advise the customer how to store print paper.

5. The transfer charging roller contact of the high-voltage power supply is not making good a connection with the contact of the transfer charging roller shaft.
   Action: If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.

6. The transfer charging roller is deformed or has deteriorated.
   Action: Replace the roller.

7. The high-voltage power supply PCB is defective.
   Action: Replace the high-voltage power supply PCB.

8. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

I-2 Dark

<Possible causes>

1. The image density is not adjusted correctly.
   Action: Adjust the image density by operating the external device.

2. The drum grounding contact of the high-voltage power supply is not making a good connection with the cartridge contact.
   Action: If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.

3. The primary changing roller-bias contact of the high-voltage power supply is not making a good connection with the cartridge contact.
   Action: If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.

4. The high-voltage power supply PCB is defective.

Action: Replace the high-voltage power supply PCB.

5. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

I-3 Completely blank

<Possible causes>

1. The projection for opening and closing the laser shutter of the EP-W cartridge is damaged.
   Action: Replace the cartridge.

2. The laser shutter arm or laser shutter is malfunctioning or damaged.
   Action: If the laser shutter arm or laser shutter does not move smoothly, or parts are damaged, replace them.

3. The developing bias contact of the high-voltage power supply is not making a good connection with the cartridge contact.
   Action: If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.

4. The high-voltage power supply PCB is defective.
   Action: Replace the high-voltage power supply PCB.

5. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

I-4 All black

<Possible causes>

1. The primary changing roller-bias contact of the high-voltage power supply is not making a good connection with the cartridge contact.
   Action: If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.

2. The EP-W cartridge is defective.
   Action: Replace the cartridge.

3. The high-voltage power supply PCB is defective.
   Action: Replace the high-voltage power supply PCB.

4. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

I-5 Dots vertically in a line

<Possible causes>

1. Static charge eliminator is dirty.
   Action: Clean the static charge eliminator.

2. The static charge eliminator contact of the high-voltage power supply is not making a good connection with the static charge eliminator contact.
   Action: If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.

3. The transfer charging roller is deformed or has deteriorated.
   Action: Replace the roller.

4. The high-voltage power supply PCB is defective.
   Action: Replace the high-voltage power supply PCB.

I-6 Dirt on back of paper

<Possible causes>

1. Periodical stain (pick-up roller, transfer charging roller, fixing lower roller)
   Action: Clean dirty rollers as shown in Table 4-5-1 on page 4-27. If they cannot be cleaned, replace them.

2. The transfer guide or fixing entry guide is dirty.
   Action: Clean dirty parts.

I-7 Vertical streaks/lines

<Possible causes>

1. The photosensitive drum is damaged peripherally.
   Action: Replace the cartridge.

2. The fixing entry guide is dirty.
   Action: Clean the fixing entry guide.

3. The fixing upper roller is scratched.
   Action: Remove the cause of the damage and replace the roller.

I-8 Smudged horizontal bands

<Possible causes>

1. The EP-W cartridge is defective.
   Action: Replace the cartridge.

2. The fixing upper roller is dirty, deformed, or worn.
   Action: Replace the fixing upper roller.

I-9 Dirty

<Possible causes>

1. The print paper is dirty.
   Action: Replace with new paper. Advise the customer how to store print paper.

2. Periodical stain (separation roller, transfer charging roller, fixing upper roller, EP-W cartridge)
   Action: Clean dirty rollers as shown in Table 4-5-1 on page 4-27. If they cannot be cleaned, replace them.

I-10 Blank spots

<Possible causes>

1. The recommended paper is not being used.
   Action: Replace the paper with the recommended paper. Advise the customer to use the recommended paper.

2. The paper is damp.
   Action: Replace the paper. Instruct the customer to wrap and store print paper correctly.

3. The transfer charging roller is dirty or deformed.
   Action: Replace the roller.

4. The EP-W cartridge is defective.
   Action: Replace the cartridge.

I-11 White vertical lines

<Possible causes>

1. Lack of toner
   Action: Take out the cartridge, rock it as shown in Chapter 1 to distribute the toner evenly, then reinstall it. If the problem continues, replace the cartridge.

2. The photosensitive drum is scratched.
   Action: Replace the cartridge.

3. Foreign matter is on the laser outlet of the printer or the laser inlet of the cartridge.
   Action: Remove the foreign matter.

4. The fixing entry guide is dirty or a foreign object is on it.
   Action: Clean the fixing entry guide.

5. The fixing upper roller surface is damaged or dented.
   Action: Replace the fixing upper roller.

6. The mirror in the laser/scanner unit is dirty.
   Action: Replace the laser/scanner unit.

I-12 White horizontal lines

<Possible causes>

1. The EP-W cartridge or fixing upper roller is defective.
   Action: Replace the cartridge or the fixing upper roller as shown in Table 4-5-1 on page 4-27.

I-13 Poor fixing

<Possible causes>

1. The envelope position lever of the fixing unit is raised.
   Action: Push down the lever.

2. The fixing roller surface is damaged or dented.
   Action: Replace the roller.

3. The fixing lower roller is dirty.
   Action: Clean the roller. If it cannot be cleaned, replace the roller.

4. The nip width of the fixing unit is not correct.
   Action: Replace the fixing unit.

5. The thermistor has deteriorated.
   Action: Replace the thermistor.

I-14 Distortion

<Possible causes>

1. Connectors on the DC controller PCB are loose.
   Action: Reconnect the J202, J206, and J207 connectors properly.

2. The laser/scanner unit connectors are loose.
   Action: Reconnect J1001, J1 and J6.

3. The laser/scanner unit is faulty.
   Action: Replace the laser/scanner unit.

4. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

I-15 Sharp black horizontal lines (BD error/BD failure)

<Possible causes>/actions>

Same as I-14.

Table 4-5-1

Periods of appearance of dirt, blank spots on images

Problem location	Diameter (mm)	Period on image (mm)	Phenomenon			
			Dirt	Blank spot	Dirt on back of paper	Poor fixing
Transfer charging roller	17.9	About 56		○	○	○
Fixing upper roller	40	About 126	○	○		○
Fixing lower roller	30	About 94			○	○
Pick-up roller	24	About 75			○	
Feed roller	24	About 75			○	
Separation roller	24	About 75	○			
Photosensitive drum	30	About 93	○	○		
Developing cylinder	20	About 75	○	○		
Primary charging roller	14	About 44	○	○		

VI. MALFUNCTION TROUBLESHOOTING

The printer driver tester is necessary for executing the malfunction troubleshooting outlined in this section. It is used to monitor failures of the printer, sensor and actuator operations. When performing the corrective actions described below, the following precautions should be taken;

- when measuring the voltage at a specified terminal of a connector, check that the connector is not causing a faulty connection.
- before handling PCBs, be sure to touch a metal part of the printer to discharge static energy, as it can cause damage to the PCBs.
- the laser/scanner unit cannot be adjusted in the field, so do not attempt to disassemble it.
  Prepare the printer driver tester for executing the troubleshooting malfunctions described in this section.

A. Messages Table

Message	Meaning	Action
+ FORMAT DISK/ - IGNORE DISK + REALLY	Either a request has been made to format the disk or the printer has determined that the disk needs formatting(Engin a new unformatted disk is installed when power up).	Press + to format the disk or press - to ignore the disk. For new/unformatted disk: If press-to ignore disk, the printer goes to "READY". Any attempt to write to the disk will be flushed since the disk has not been formatted
FORMAT - IGNORE DISK	the operator is being asked to verify the disk formatting is really wanted. This is in response to the foregoing message.	Press + to verify that the disk is to be formatted or press - to skip formatting the disk. This message will not display for new/unformatted disk(eg. The disk is to be formatted for the 1st time)
START DISK TEST	Start testing the hard disk	Press ENTER to start disk testing. **NOTE**: this operation will cause the disk to format when press enter to end test. If the printer is powered off during the disk test, the message + FORMAT DISK - IGNORE DISK will appear when the printer is powered on
ENTER ENDS TEST	Stop testing the hard disk	Press ENTER to end disk testing. **NOTE**: The disk will be formatted and the printer will reboot automatically when press ENTER to end disk test
DISK ALMOST FULL	Warning message when the Disk is 70+% full.	Delete pcl/ps fonts/macros/files or format the disk to clear the message. The message doesn't clear with power cycle or COLD RESET. This message has lower priority than printer error messages such as "toner low" or "memory overflow"
DISK FULL	Disk is 95% full. The printer goes offline (also at power up with a "disk full" installed). If AUTO CONT is ON, the printer will resume back online after 10 seconds. If continue to send files to the disk that larger than the 5% left on the disk, the files will be flushed or printed out as text.	Delete pcl/ps fonts/macros/files or format the disk to clear the message. The message doesn't clear with power cycle or COLD RESET. This message has lower priority than printer error messages such as "toner low" or "memory overflow"
READY #OF###	Mopier is activated. ### is the total mopier count. # is the increment count up to ###.	No action required. This message is temporarily

Message	Meaning	Action
	Mopier is only available when the hard disk is installed	displayed for the duration of the printer's processing time. @PJL RDYMSG DISPLAY will have higher priority than "# OF ###" message.
TONER LOW	Toner is low.	Replace the toner cartridge as soon as possible. The printer will continue to operate, but the images will degrade.
TONER CART MISSING	Toner Cartridge is missing.	Add toner cartridge.
PRINTER OPEN	TOP, right or left (side) cover is open.	Close all cover doors.
STACKER COVER OPEN	stapler stacker top or front (spapler door) cover is open.	Close all cover doors.
COVER OPEN	Paper deck feed cover is open.	Close the feed cover.
LOAD <SIZE> IN <TRAY>	Load the specified tray with paper size. trays: UPPER - The 500 sheet upper cassette. LOWER - The 500 sheet lower cassette. PAPER DECK - The 2,000 sheet paper deck. MPT - The MP tray on the printer. ENVELOPE - The optional envelope feeder. size: LETTER - Letter size paper. LEGAL - Legal size paper. 11X17 - Ledger size paper. A3 - A3 size paper. A4 - A4 size paper. A5 - A5 size paper. 11x17 - 11in. x 17in. size paper. EXEC - Executive size paper. C-10 - Commercial # 10 envelope. MONARCH - Monarch envelope. DL - DL envelope. C5 - C5 envelope. B5-JIS - B5 size paper. B5-ISO - B5 envelope. B4 - B4 size paper.	The specified tray must be loaded with the specified paper size. Depending upon cirumstances, the CONINUE key may be required to continue the job. If the prinetr is printing and a tray runs out of paper, for instance, simply loading the tray and closing it will cause the printer to continue normally. If, however, the printer does not contain the required paper and it must be loaded into the specified tray, the CONTINUE key must be pressed to resume printing. In the case of manual feed (discussed following), the CONTINUE key must always be pressed.
LOAD <SIZE> IN MANUAL	CUSTOM - Custom paper size Any - Unknown size paper.	Press the CONTINUE key to resume printing.
UPPER TRAY IN MOTION	Load Manual tray with paper size. Like "Load" but for manual feed only.	No Action Required.
LOWER TRAY IN MOTION	The paper tray is repositioning the stack after new paper was loaded.	No Action Required.
PAPER DECK TRAY	The paper tray is repositioning the stack	No Action Required.

Message	Meaning	Action
IN MOTION	after new paper was loaded.	
OUTPUT FULL CHECK BIN 1	The specified output bin is full.	Remove the paper from the tray.
OUTPUT FULL CHECK BIN 2	The specified output bin is full.	Remove the paper from the tray.
OUTPUT FULL CHECK BIN 3	The specified output bin is full.	Remove the paper from the tray.
OUTPUT FULL STD. TRAY	The specified output face-down tray is full.	Remove the paper from the face-down tray.
LOWER MISSING	The lower cassette is not in the printer or is not correctly positioned.	Reinsert the lower cassette.
UPPER MISSING	The upper cassette is not in the printer or is not correctly positioned.	Reinsert the upper cassette.
PAPER DECK MISSING	The specified Tray is missing.	Reinsert the tray.
DUPLEX OPTION ERROR	The duplexing unit has been removed or is no longer properly seated.	Reinsert the duplexing unit into the printer.
ENVELOPE OPTION ERROR	The envelope feeder has been removed or is no longer properly seated.	Reinsert the envelope feeder into the printer.
PAPER DECK OPTION ERROR	The paper deck has been removed or is no longer properly connected.	Reconnect the paper deck to the printer.
STACKER OPTION ERROR	The Stapler Stacker has been removed or is no longer properly connected.	Re-connect the Stapler Stacker to the printer.
CHECK INPUT TRAY	A paper jam occured near the input tray.	Check the area specified.
OPEN FRONT COVER	A paper jam occured near the front cover.	Check the area specified.
OPEN LEFT COVER	A paper jam occured near the left cover.	Check the area specified.
OPEN RIGHT COVER	A paper jam occured near the right cover.	Check the area specified.
OPEN TOP COVER	A paper jam occured near the upper cover.	Check the area specified.
1 PAPER JAM	Paper jam has occurred somewhere in the paper path.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
2 PAPER JAM	Paper jam has occurred in the input paper path.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
3 PAPER JAM	Paper jam has occurred in the input paper path.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
4 PAPER JAM	Paper jam has occurred in the fixing unit area.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
5 PAPER JAM	Paper jam has occurred in the fixing unit	Remove the jammed paper from

Message	Meaning	Action
	area.	the paper path. The upper cover must be opened and closed to resume. printing.
6 PAPER JAM	Paper jam has occurred near the face-down tray.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
7 PAPER JAM	Paper jam has occurred near the face-down tray.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
8 PAPER JAM	Paper jam has occurred in the fixing unit area.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
9 PAPER JAM	Paper jam has occurred near the duplexing unit.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
10 PAPER JAM	Paper jam has occurred near the duplexing unit.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
11 PAPER JAM	Paper jam has occurred in the duplexing unit.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
12 PAPER JAM	Paper jam has occurred in the duplexing unit.	Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
13.1 PAPER JAM CHECK PAPER DECK	Paper jam has occured in the Paper Deck.	Check the Paper Deck. Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
13.2 PAPER JAM CHECK PAPER DECK	Paper jam has occured in the Paper Deck.	Check the Paper Deck. Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
13.3 PAPER JAM CHECK PAPER DECK	Paper jam has occured in the Paper Deck.	Check the Paper Deck. Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
14.1 PAPER JAM OPEN RIGHT COVER	Paper jam has occured in the feed cover.	Check the Paper Deck. Remove the jammed paper from the paper path. The upper cover

Message	Meaning	Action
		must be opened and closed to resume. printing.
14.2 PAPER JAM OPEN RIGHT COVER	Paper jam has occured in the feed cover.	Check the Paper Deck. Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
14.3 PAPER JAM OPEN RIGHT COVER	Paper jam has occured in the feed cover.	Check the Paper Deck. Remove the jammed paper from the paper path. The upper cover must be opened and closed to resume. printing.
OPTIONS CONTROLLER	Option controller error with paper deck.	Reconnect the paper deck to the printer.
DUPLEX COVER OPEN	The delivery cover is open.	Close the cover.
OPT CONTROLLER ERROR	There is a problem with the Option Controller	Replace the option controller.
OPT CONTROLLER COMMUNICATIONS ERROR	There is a problem with the Option Controller	Replace the option controller.
MEMORY OVERFLOW	Memory overflow. The printer received more data than it can fit into its available memory. This can happen if too many soft fonts, macros, or graphics which are too complex are received.	The job will resume after 10 seconds if AUTOCONT is ON. Otherwise press the CONTINUE key to resume printing. Check the page that ejects since the could not be processed as requested. Also simplify the job or add additional memory.
ERROR DISK CALL FOR SERVICE	Hard Drive Failure - Read Error -	Replace the hard disk.
MEMORY ALLOC ERROR	GRS has been unable to allocate the memory it needs.	The job will resume after 10 seconds if AUTOCONT is ON. Otherwise press the CONTINUE key to resume printing. Check the page that ejects since the could not be processed as requested.
1 NETWORK OPTION ERROR	Bad NIC in slot 1.	Replace the NIC.
2 NETWORK OPTION ERROR	Bad NIC in slot 2.	Replace the NIC.
43 PS OPTION ERROR	Option PS ROM (DIMM) diagnostic error.	An option ROM has failed its startup checksum and needs to be replaced.
EXP I/O ERROR: ##	LocalTalk error, where ## is the number. 00 Shared Memory test error 01 CRC receive error 02 Receive over-run error	These are problems with the 8051 (LocalTalk) card. These errors will be displayed and the printer will halt.

Message	Meaning	Action
	03 Not at end of frame error 04 LocalTalk network siways busy 05 LocalTalk excess collision error 06 LocalTalk excess defers error 07 LocalTalk unidentified cntl LLAP type 08 Receive Msg length error 10 8751 Internal RAM error 11 Cannot acquire a node ID 12 Aborted during a receive	Replace the LocalTalk card.
NETWORK OPTION ERROR	Tow network cards of the same type are installed in printer.	Remove one of the network cards.
ETHERNET OPTION ERROR	The Ethernet card is not communicating with the controller.	Replace the Card.
LOCALTALK OPTION ERROR	The Ethernet card is not communicating with the controller.	Replace the Card.
TOKEN RING OPTION ERROR	The Ethernet card is not communicating with the controller.	Replace the Card.
10 ERROR CALL FOR SERVICE	Unknown Fuser Error.	See M-1 to 3 of pages 4-40 to 41
10.1 ERROR CALL FOR SERVICE	Abnormally low fuser temperature.	See M-2 of page 4-40
10.2 ERROR CALL FOR SERVICE	Fuser warm up time out.	
10.3 ERROR CALL FOR SERVICE	Fuser overheating.	See M-1 of page 4-40
10.4 ERROR CALL FOR SERVICE	Fuser Error.	See M-3 of page 4-41
11 ERROR CALL FOR SERVICE	Unknown Scanner Error.	See M-5 of page 4-41
11.1 ERROR CALL FOR SERVICE	Scanner start up failure.	
11.2 ERROR CALL FOR SERVICE	Scanner rotation failure.	
11.3 ERROR CALL FOR SERVICE	Scanner Beam failure.	See M-4 of page 4-41
11.4 ERROR CALL FOR SERVICE	Laser Beam failure.	
12 ERROR CALL FOR SERVICE	Unknown Motor Error.	See M-6 of page 4-42
12.1 ERROR CALL FOR SERVICE	Motor start up failure.	
12.2 ERROR CALL FOR SERVICE	Motor rotation failure.	
13.1 ERROR CALL FOR SERVICE	Fan motor 1 failure.	See M-7 of page 4-42
13.2 ERROR CALL FOR SERVICE	Fan motor 2 failure.	See M-8 of page 4-42
13.3 ERROR FAN 3 CALL FOR	Fan motor 3 failure.	See M-9 of page 4-43

Message	Meaning	Action
SERVICE		
13.4 ERROR FAN 4 CALL FOR SERVICE	Fan motor 4 failure.	See M-10 of page 4-43
14.1 ERROR AUX TRAY CALL FOR SERVICE	Lifter mechanism for the Aux Tray has failed.	See M-11 of page 4-43
CHECK INPUT AREA	A paper jam occured near the input tray.	Check the area specified.
OPEN TOP COVER	A paper jam occured near the top cover.	Check the area specified.
CHECK OUTPUT BINS	A paper jam occured at the stapler stacker output bins.	Check the area specified.
15.1 STACKER JAM	Jam at input paper sensor-Initial Jam	Remove jammed paper and close cover.
15.2 STACKER JAM	Jam at input paper sensor-Stay Jam	Remove jammed paper and close cover.
15.3 STACKER JAM	Jam at input paper sensor-Delay Jam	Remove jammed paper and close cover.
15.4 STACKER JAM	Jam at input paper sensor-Early Jam	Remove jammed paper and close cover.
16.1 STACKER JAM	Reversing unit paper sensor-Initial Jam	Remove jammed paper and close cover.
16.2 STACKER JAM	Reversing unit paper sensor-Stay Jam	Remove jammed paper and close cover.
16.3 STACKER JAM	Reversing unit paper sensor-Delay Jam	Remove jammed paper and close cover.
16.4 STACKER JAM	Reversing unit paper sensor-Early Jam	Remove jammed paper and close cover.
17.1 STACKER JAM	Jam at delivery paper sensor-Initial Jam	Remove jammed paper and close cover.
17.2 STACKER JAM	Jam at delivery paper sensor-Stay Jam	Remove jammed paper and close cover.
17.3 STACKER JAM	Jam at delivery paper sensor-Delay Jam	Remove jammed paper and close cover.
17.4 STACKER JAM	Jam at delivery paper sensor-Early Jam	Remove jammed paper and close cover.
18.1 STACKER JAM	Jam at Staple tray sensor-Initial	Remove jammed paper and close cover.
18.2 STACKER JAM	Jam at Staple tray sensor-Stay	Remove jammed paper and close cover.
18.3 STACKER JAM	Jam at Staple tray sensor-Delay	Remove jammed paper and close cover.
STAPLE JAM OPEN STAPLER COVER	Jam near the stapler	Clear jam
LOAD & TEST STAPLES	Staples low/empty and/or perform STAPLE TEST from the TEST MENU	Load staples. After loading new staples cartridge, the “LOAD & TEST STAPLES” message will remain on the UI until STAPLE TEST is performed. STAPLE

Message	Meaning	Action
		TEST must be executed every time the staples cartridge is removed or reinstalled (regardless if the staple cartridge is full or not). The printer will not staple jobs correctly if STAPLE TEST is not executed.
15.1 ERROR STACKER CALL FOR SERVICE	Malfunction of paper delivery motor	See service manual of stapler stacker.
15.2 ERROR STACKER CALL FOR SERVICE	Malfunction of stapler shift motor	See service manual of stapler stacker.
15.3 ERROR STACKER CALL FOR SERVICE	Malfunction of staple motor	See service manual of stapler stacker.
15.4 ERROR STACKER CALL FOR SERVICE	Malfunction of alignment plate shift motor	See service manual of stapler stacker.
15.5 ERROR STACKER CALL FOR SERVICE	Malfunction of tray unit elevation motor	See service manual of stapler stacker.
15.6 ERROR STACKER CALL FOR SERVICE	Overheating of the tray unit elevation	See service manual of stapler stacker.
16.1 ERROR STACKER CALL FOR SERVICE	Malfunction of shutter	See service manual of stapler stacker.
16.2 ERROR STACKER CALL FOR SERVICE	Malfunction of swing-guide	See service manual of stapler stacker.
17.1 ERROR STACKER CALL FOR SERVICE	Malfunction of distance detecting sensor	See service manual of stapler stacker.
18.1 ERROR PAPER DECK	Malfunction of paper deck feed motor	See M-20 of 4-44.
18.2 ERROR PAPER DECK	Malfunction of paper deck lifter	See M-16 of 4-42.
61 ERROR CALL FOR SERVICE	Resident ROM checksum error.	Turn the power OFF, then turn it ON again. If it does not remedy the problem, replace the resident ROM.
62 ERROR CALL FOR SERVICE	Resident DRAM error.	Turn the power OFF, then turn it ON again. If it does not remedy the problem, replace the resident DRAM.

Message	Meaning	Action
63 ERROR CALL FOR SERVICE	NVRAM (EEPROM) error.	Turn the power OFF, then turn it ON again. If it does not remedy the problem, replace the resident NVRAM.
64 ERROR CALL FOR SERVICE	SRAM in AIR chip error.	Replace the video controller PCB.
32 DISK ERROR	Hard Drive Failure - Write Error -	Replace the hard disk.
33 DISK ERROR	Hard Drive Failure - Read Failure -	Replace the hard disk.
COLD RESET	Displays when the COLD RESET (letter or A4) Power-on sequence is selected.	No action required although the printer will be reset to its factory defaults and any unique settings will have to be reset.
COLD RESET A4	Displays when Factory Reset - A4 Power-on sequence is selected.	No action required.
COLD RESET LTR	Displays when Factory Reset - LTR Power-on sequence is selected.	No action required.
CONTEXT SAVE ADJUSTED	Context Saving mechanism modified by OS. Displayed when printer powered on with context saving enabled, but due to manual recofiguration, there is not enough memory to support it.	Press CONTINUE key to continue.
CONTEXT SAVE CHANGE	Context Saving mechanism modified by USER. Displayed when going online after modifying context saving.	Press CONTINUE and printer will reboot to enable its new state.
RESET TO SAVE	RESET verification prompt. This message will appear momentarily and then PAUSED. When a menu item was changed before the printer releases the port on which the last job was processed, such as in the middle of a job, or before the port timed out.	Two options are available: 1. Press the reset key to enter the RESET menu and save the information immediately. This will terminate the current job, deleting temporary fonts, macros and buffered data. 2. Press ONLINE and the current job will resume where it left off. The menu items changed will not take effect until the next end of job.
DSK FMT RESTART	The operator has formatted the disk and the operation has completed. The system will now restart.	No action required.
FLUSHING...	A Reset operation has been performed by the Operator in the middle of a job. The current job is being flushed.	The job that has been flushed will have to be resubmitted.
FORMATTING...	This message displays when the disk is being formatted.	No action required.
I/O INITIALIZING	This message displays when one of the PSIO cards is being initialized.	No action required.
INSTALL UPPER.	This message may display if the upper tray is missing.	Install the upper tray.
KEY NOT VALID	Displays when a key is pressed that is not	Press the correct button to

Message	Meaning	Action
	enabled at this time.	complete the current function.
LOCALTALK INITIALIZING	LocalTalk is initializing.	No action required.
MPT TRAY JAM CLEAR PAPER PATH	A paper jam has occurred in the MP tray.	Clear the paper path.
MRT COMPRESSION	Printer has invoked MRT Compression because the page was too complex.	No action required.
OPEN FRONT COVER CLEAR PAPER PATH	A paper jam has occurred.	Take the action specified on the second line.
OPEN FRONT COVER REMOVE JAM SHEET	A paper jam has occurred.	Take the action specified on the second line.
OPEN OFFSET DOOR CLEAR PAPER PATH	A paper jam has occurred.	Take the action specified on the second line.
OPEN REAR COVER CLEAR PAPER PATH	A paper jam has occurred.	Take the action specified on the second line.
OPERATION CHECK	This is the Control Panel Diagnostic Mode.	Factory Usage Only. See section on diagnostics.
PAGES: ####	Displays under TEST when SHOW PAGE COUNT is selected. #### is number of pages.	No action required.
PANEL CHECK	Displays during a panel check function.	Proceed with the panel check function.
PANEL CHECK DONE	Displays when panel check function is complete.	Power cycle printer.
WRONG PAPER SIZE	A paper size mismatch has occurred. More than one paper size has been found in the same tray.	Inspect the trays for mismatched paper and correct.
PAUSED	Printer is OFFLINE.	Press ONLINE.
PRINTING...	Usually displayed when printing an item form the TEST MENU, or when attempting to go offline while the printer is busy.	
READY	Printer is ready to receive data and print.	No action required.
REMOVE DUPLXUNIT CLEAR PAPER PATH	A paper jam or misfeed has occurred in or near the unit specified..	Take the action specified.
REMOVE ENV FEEDER OPEN FRONT COVER	A paper jam or misfeed has occurred in or near the unit specified..	Take the action specified.
REMOVE JAM ENVEL	A paper jam or misfeed has occurred in or near the unit specified..	Take the action specified.
REMOVE PRINTCART CLEAR PAPER PATH	A paper jam or misfeed has occurred in or near the unit specified..	Take the action specified.
REMOVE	A paper jam or misfeed has occurred in or	Take the action specified.

Message	Meaning	Action
PRINTCART CLEAR PAPER PATH	near the unit specified..	
RESETTING PRINTER	Displays when TEST/RESET PRINTER item is selected.	No action required.
RESTORING DEFAULTS	Displays when TEST/FACTORY DEFALTS item is selected.	No action required.
SRAM ERROR CALL SERVICE	The AIR Chip has failed.	Replace the video controller PCB.
WARNING UP...	Printer is warming up.	Wait until the printer has warmed up and displays READY.

B. Malfunction Troubleshooting

M-1 Fixing Unit Failure (Abnormal Temperature)

<Possible causes>

1. The thermistor has shorted.
   Action: Turn the power OFF and remove the fixing unit. Measure the resistance between the fixing unit connector J50B-2 (FSRTH) and J50B-3 (GNDTH). The connector J50B is the lower terminal of the left connector. If the resistance is 1kΩ or less, check the wiring from connector J222 on the DC controller PCB to the thermistor. If it is normal, replace the thermistor.

2. The fixing unit drive circuit in the power supply is defective.
   Action: Replace the power supply.

3. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-2 Fixing Unit Failure (abnormal Warm-up failure/abnormal low temperature)

<Possible causes>

1. The thermistor is dirty.
   Action: If the thermistor contact area of the fixing upper roller is dirty, clean it.

2. The thermistor is not installed correctly.
   Action: If the thermistor is not evenly contacting the fixing upper roller, re-install the thermistor correctly.

3. The thermistor wire is broken.
   Action: Turn the power OFF and remove the fixing unit. Measure the resistance between the fixing unit connector J50B-2 (FSRTH) and J50B-3 (GNDTH). If the resistance is not between 150kΩ and 290kΩ (normal temperature), check the wiring from connector J222 on the DC controller PCB to the thermistor. If it is normal, replace the thermistor.

4. The main heater wire is broken.
   Action: Remove the fixing unit. If there is no continuity between the fixing unit connector J50-3 (FSRN1: the upper right terminal of the left connector) and J51-4 (FSRN2: the upper right terminal of the right connector), replace the main heater.

5. The sub heater wire is broken.
   Action: Remove the fixing unit. If there is no continuity between the fixing unit connector J50-4 (FSRL1: the lower right terminal of the left connector) and J51-3 (FSRL2: the lower right terminal of the right connector), replace the sub heater.

6. The thermoswitch is open.
   Action: Remove the fixing unit and wiring cover. If there is no continuity between thermoswitch connectors, replace the thermoswitch.

7. The DC controller PCB is defective.

Action: Replace the DC controller PCB.

M-3 Fixing unit failure (wrong type)

<***Possible causes***>

1. The rated voltage of the fixing unit does not match the power supply voltage.
   Action: Replace the fixing unit.

2. The type detection circuit in the power supply is defective.
   Action: Replace the power supply.

3. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-4 BD/Laser Malfunction

<***Possible causes***>

1. Condensation
   Action: Leave the printer running for 10 to 20 minutes.

2. The BD signal line connector is loose.
   Action: Reconnect connector J6 on the BD PCB and J206 on the DC controller PCB.

3. The laser drive signal line connectors are loose.
   Action: Reconnect connector J1001 on the laser driver PCB, and connector J202 on the DC controller PCB.

4. The laser/scanner unit is defective. (The BD signal is not output correctly.)
   Action: Replace the laser/scanner unit.

5. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-5 Scanner Motor Malfunction

<***Possible causes***>

1. The scanner motor drive line connectors are loose.
   Action: Reconnect connector J1 on the scanner driver PCB, terminal connector J18, and connector J207 on the DC controller PCB.

2. The scanner motor driver is defective.
   Action: Use the printer driver tester to rotate the scanner motor. If it does not rotate, replace the laser/scanner unit.

3. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-6 Faulty Main Motor

<Possible causes>

1. The main motor drive line connectors are loose.
   Action: Reconnect connector J12 of the main motor and connector J218 on the DC controller PCB.

2. The door switch in the switch/sensor PCB is defective.
   Action: Remove connectors J205 and J221 on the DC controller PCB. If J205-3 (+24V) and J221-1 (+24VB) on the cable side do not conduct when the door switch (SW1401) is on, replace the switch/sensor PCB.

3. The main motor is defective.
   Action: Use the printer driver tester to rotate the main motor. If it does not rotate, replace it.

4. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-7 Fixing Unit/Scanner Fan (FM1) Failure

<Possible causes>

1. The FM1 drive signal line connector is loose.
   Action: Reconnect connector J208 on the DC controller PCB.

2. The fixing unit/scanner fan is defective.
   Action: Disconnect connector J208 on the DC controller PCB. Turn the power switch ON and measure the voltage between connector J208-1 (FAN1D) and J208-3 (GND) on the DC controller PCB. If the voltage changes from 0 to more than 18V, replace the fixing unit/scanner fan.

3. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-8 Power Supply Fan (FM2) Failure

<Possible causes>

1. The FM2 drive signal line connector is loose.
   Action: Reconnect connector J216 on the DC controller PCB.

2. The power supply fan is defective.
   Action: Disconnect connector J216 on the DC controller PCB. Turn the power switch ON and measure the voltage between connector J216-1 (FAN2D) and J216-3 (GND) on the DC controller PCB. If the voltage changes from 0 to more than 18V, replace the power supply fan.

3. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-9 Electrical Unit Fan (FM3) Failure

<Possible causes>

1. The FM3 drive signal line connector is loose.
   Action: Reconnect connector J210 on the DC controller PCB and connectors J12 and J13.

2. The electrical unit fan is defective.
   Action: Disconnect connector J210 on the DC controller PCB. Turn the power switch ON and measure the voltage between connector J210-1 (FAN3D) and J210-3 (GND) on the DC controller PCB. If the voltage changes from 0 to more than 18V, replace the electrical unit fan.

3. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-10 Fixing Unit Fan (FM4) Failure

<Possible causes>

1. The FM4 drive signal line connector is loose.
   Action: Reconnect connector J225 on the DC controller PCB and connectors J25 and J26.

2. The fixing unit fan is defective.
   Action: Disconnect connector J225 on the DC controller PCB. Turn the power switch ON and measure the voltage between connector J225-1 (FAN4D) and J225-3 (GND) on the DC controller PCB. If the voltage changes from 0 to more than 18V, replace the fixing unit fan.

3. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-11 Lifting Plate Failure

<Possible causes>

1. Lifting plate drive unit parts are damaged.
   Action: Replace any damage parts.

2. The lifting plate position sensor is defective.
   Action: Check the sensor state using the printer driver tester. If it is defective, replace the multi-purpose tray PCB.

3. The lifting plate solenoid is defective.
   Action: Disconnect lifting plate solenoid connector J1302. Measure the resistance between connectors J1302-1 and J1302-2 on the cable side. If it is not about 100Ω, replace the lifting plate solenoid.

4. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-12 Horizontal Registration Guide Failure (When the Duplexing Unit is Installed)

<Possible causes>

1. The horizontal registration guide home position sensor signal line and horizontal registration motor drive signal line connectors are loose.
   Action: Reconnect connectors J2005 and J2006 on the duplexing driver PCB.

2. Gears are damaged.
   Action: Replace any damaged gears.

3. The horizontal registration guide home position sensor is defective.
   Action: Check the sensor state using the printer driver tester. If it is defective, replace the sensor.

4. The horizontal registration motor is defective.
   Action: Replace the horizontal registration motor.

5. The duplexing driver PCB is defective.
   Action: Replace the duplexing driver PCB.

M-13 No AC Power Input (printer)

<Possible causes>

1. The correct voltage is not present at the outlet.
   Action: Inform the customer that the correct line voltage is not available at the outlet.

2. The power cord is not firmly plugged into the printer, the paper deck, and the outlet.
   Action: Push the power plugs in firmly.

3. The circuit breaker is off.
   Action: Remove the power supply. Press the circuit breaker button to set the circuit breaker ON.
   Turn the circuit breaker on 30 seconds after it is turned on.
   Before plugging the power cord into the outlet, turn the power switch ON and check the AC line circuit short and the circuit breaker states (continuity and contact resistance) using a multimeter.

4. The power switch is defective.
   Action: Remove the power supply. Measure the resistance between the two terminals of the power switch by applying the tester probes to the terminals. The resistance must be zero V when the power is turned ON, and ∞Ω when the switch is turned OFF. Otherwise, replace the power supply.

5. The AC power line is defective.
   Action: Replace the power supply.

M-14 No Power Input (paper deck)

<Possible causes>

1. The correct voltage is not present at the outlet.

Action: Inform the customer that the correct line voltage is not available at the outlet.

2. The power plug is not firmly plugged into the printer, the paper deck or the outlet.
   Action: Push the power plugs in firmly.

3. A poor connection in the interface connector, power ON signal not being input.
   Action: Reconnect the interface connector.

4. The power ON signal is not being output.
   Action: Turn the printer power switch ON. Measure the voltage between jumper connectors JP201-1 (PWRON-IN) and JP201-1 (GND) on the paper deck driver PCB. If the value is not about 5V, replace the option controller PCB. If this does not rectify the situation, replace the video controller PCB.

5. Blown fuse.
   Action: Remove the power supply and replace the fuse.

6. The overcurrent/overvoltage detection circuit has been activated.
   Action: If turning the power switch ON/OFF does not rectify the situation, investigate the cause of the overcurrent/overvoltage detection circuit being activated. Be sure to turn the power OFF for 2 minutes then turn it ON again.

7. Faulty power supply.
   Action: Turn the printer power switch OFF and remove connector J203 from the paper deck driver PCB. Plug the power cable into the power supply and turn the printer power ON. Then measure the DC power supply through connector J203. While doing this be careful not to short it. If the correct voltage is not being output, replace the power supply.

8. Cable, DC load and paper deck driver PCB
   Action: Turn OFF the printer power switch, and check the lines and DC loads from the paper deck driver PCB. If there are no problems with either of them, replace the paper deck driver PCB.

M-15 No DC Power Input

<Possible causes>

1. The AC power is not present.
   Action: Make a check using the steps of M-13 “No AC Power Input (printer)”.

2. The overcurrent/overvoltage detection circuit is active.
   Action: If the problem is not rectified when the power switch is turned OFF and ON again, find the cause of activation of the overcurrent/overvoltage detection circuit of the power supply. Turn the power switch OFF for 2 minutes then turn it ON again.

3. The fuse has blown.
   Action: Remove the power supply and replace the fuse.

4. The power supply is defective.
   Action: Turn the power switch OFF and remove connector J204 from the DC controller PCB. Plug the power cable and turn the power switch ON. Measure the DC power

supply output of the connector J204. Do not short the connector. If the correct value is not output, replace the power supply.

5. Wiring, DC load, DC controller PCB
   Action: Turn the power switch OFF. Check the wiring from the DC controller PCB and the DC load. If they are normal, replace the DC controller PCB.

M-16 Lifting Plate not rising (paper deck)

<***Possible causes***>

1. The tray is not correctly installed.
   Action: Reload the tray.

2. The paper size detection lever is not being pressed as the paper guides are not properly inserted.
   Action: Insert the paper guides correctly.

3. The side and end guides are not installed in the correct paper size slots. (For example, the side guide is in the B4 or legal slot, whereas the end guide in the letter or A4 position.
   Action: Insert the width and trailing edge guides properly

4. Cut wire.
   Action: Replace the wire.

5. Damaged gear
   Action: Check the gears, and replace if damaged.

6. Defective lifter clutch
   Action: Remove connector J119 from the lifter clutch. Measure the resistance between connectors J119-1 and J119-4 on the clutch side. Replace the lifter clutch if the resistance is not about 155Ω.

7. Faulty lifter abnormal position sensing switch
   Action: Remove connector J121 from the lifter abnormal position sensing switch. Measure the resistance between connectors J121-1 and J121-2 on the switch side. Replace the switch if the resistance is ∞Ω.

8. Defective sensor lever
   Action: Adjust the lever so it moves smoothly. Replace if damaged.

9. Defective paper surface sensor
   Action: Pull the tray half way out and lower it. Turn the printer power ON. Measure the voltage between connectors J208-8 (LIFT) and J208-10 (GND) on the paper deck driver PCB. Replace the sensor if the voltage is about 5V.

10. Defective paper-size sensing switch PCB
    Action: Replace the paper-size sensing switch PCB.

11. Defective paper deck driver PCB
    Action: Replace the paper deck driver PCB.

M-17 No Paper Pick-Up from Multi-purpose Tray

<Possible causes>

1. Video controller PCB is defective.
   Action: Make a test print from the multi-purpose tray using the printer driver tester. If the paper is picked up correctly, replace the video controller PCB.

2. Gears are damaged.
   Action: Remove the manual feed pick-up unit and check the gears. Replace any damaged gears.

3. The manual feed clutch is defective.
   Action: Remove the manual feed pick-up unit and disconnect manual feed clutch connector J1303 from the multi-purpose tray PCB. Measure the resistance between connectors J1303-1 and J1303-2 on the cable side. If it is not about 155 , replace the manual feed clutch.

4. The multi-purpose tray PCB is defective.
   Action: Replace the multi-purpose tray PCB.

5. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-18 No Paper Pick-Up from Upper or Lower Cassette

<Possible causes>

1. Video controller PCB is defective.
   Action: Use the printer driver tester to make a test print from the cassette with a paper pick-up failure. If the paper is picked up correctly from the cassette, replace the video controller PCB.

2. Pick-up drive unit is damaged.
   Action: Remove the pick-up unit and replace any damaged parts.

3. The pick-up motor is defective.
   Action: Use the printer driver tester to rotate the paper pick-up motor. If it does not rotate, replace it.

4. The cassette pick-up solenoid is defective.
   Action: Remove the pick-up unit, and disconnect cassette pick-up solenoid connector J1203 from the pick-up PCB. Measure the resistance between connectors J1203-1 and J1203-2 on the cable side. If it is not about 190 , replace the cassette pick-up solenoid.

5. The pick-up PCB is defective.
   Action: Replace the pick-up PCB.

6. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-19 No Paper Pick-Up from Envelope feeder

<Possible causes>

1. Video controller PCB is defective.
   Action: Use the printer driver tester to make a test print from the envelope feeder. If the envelope is picked up correctly from the envelope feeder, replace the video controller PCB.

2. Gears are damaged.
   Action: Remove the envelope feeder and check the gears. Replace any damaged gears.

3. The envelope feeder pick-up motor is defective.
   Action: Use the printer driver tester to rotate the envelope feeder pick-up motor. If it does not rotate, replace it.

4. The envelope feeder driver PCB is defective.
   Action: Replace the envelope feeder driver PCB.

5. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-20 No Paper Pick-Up from Paper deck

<Possible causes>

1. Damaged part in the paper pick-up drive unit.
   Action: Remove the pick-up unit and replace any damaged parts.

2. Faulty pick-up solenoid
   Action: Remove pick-up solenoid connector J115. Measure the resistance between connectors J115-1 and J115-2 on the cable side. If it is not about 190 , replace the pick-up solenoid.

3. Defective pick-up motor
   Action: Load one sheet of paper into the paper deck. Then after shorting jumpers JP201-2 (TEST-1) and JP201-1 (GND) on the paper deck driver PCB, turn the printer power switch ON. If the pick-up motor does not rotate at that time, replace the motor.

4. Defective paper deck driver PCB
   Action: Replace the paper deck driver PCB.

5. Defective option controller PCB.
   Action: Replace the option controller PCB.

6. Defective video controller PCB.
   Action: Replace the video controller PCB.

M-21 Registration Roller not rotating (printer)

<Possible causes>

1. Gears are damaged.
   Action: Replace any damaged gears.

2. The registration clutch is defective.
   Action: Disconnect registration clutch connector J17. Measure the resistance between connectors J17-1 and J17-2 on the cable side. If it is not about 210 , replace the registration clutch.

3. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-22 Registration Roller not rotating (paper deck)

<***Possible causes***>
1. Gears are damaged.
   Action: Replace any damaged gears.

2. Defective registration clutch.
   Action: Remove connector J102. Measure the resistance between connectors J102-7 and J102-8 on the clutch side. If it is not about 210 , replace the registration clutch.

3. Defective paper deck driver PCB
   Action: Replace the paper deck driver PCB.

M-23 Poor Output from the High-Voltage Power Supply

<***Possible causes***>
1. A terminal of the high-voltage contacts is dirty or burnt out.
   Action: Clean the terminals of the high-voltage contact. Replace if is burnt out.

2. The high-voltage power supply PCB is defective.
   Action: Replace the high-voltage power supply PCB.

3. The DC controller PCB is defective.
   Action: Replace the DC controller PCB.

M-24 Feed Roller not rotating (paper deck)

<***Possible causes***>
1. Gears are damaged.
   Action: Replace any damaged gears.

2. Defective feed clutch.
   Action: Remove connector J102. Measure the resistance between connectors J102-9 and J102-10 on the clutch side. If it is not about 210 , replace the feed clutch.

3. Defective paper deck driver PCB
   Action: Replace the paper deck driver PCB.

M-25 Faulty Deck Motor (paper deck)

<Possible causes>

1. Poor contact in the deck motor drive signal line connector
   Action: Reconnect deck motor connector J118 and connector J204 on the paper deck driver PCB.

2. Faulty deck motor
   Action: Measure the voltage between connectors J204-4 (DCMOT-ON) and J204-2 (GND) on the paper deck driver PCB. Pull out the tray, when pushed back in, if the measured value changes from 5V to 0V, replace the deck motor.

3. Defective paper deck driver PCB
   Action: Replace the paper deck driver PCB.

VII. PAPER FEEDING TROUBLESHOOTING

A. Paper Jams

Paper in the printer passes through five major units: (1) duplexing unit, (2) fixing and delivery unit, (3) envelope feeder unit, (4) pick-up unit, and (5) paper deck unit. The following explains troubleshooting for jams in each of these units.

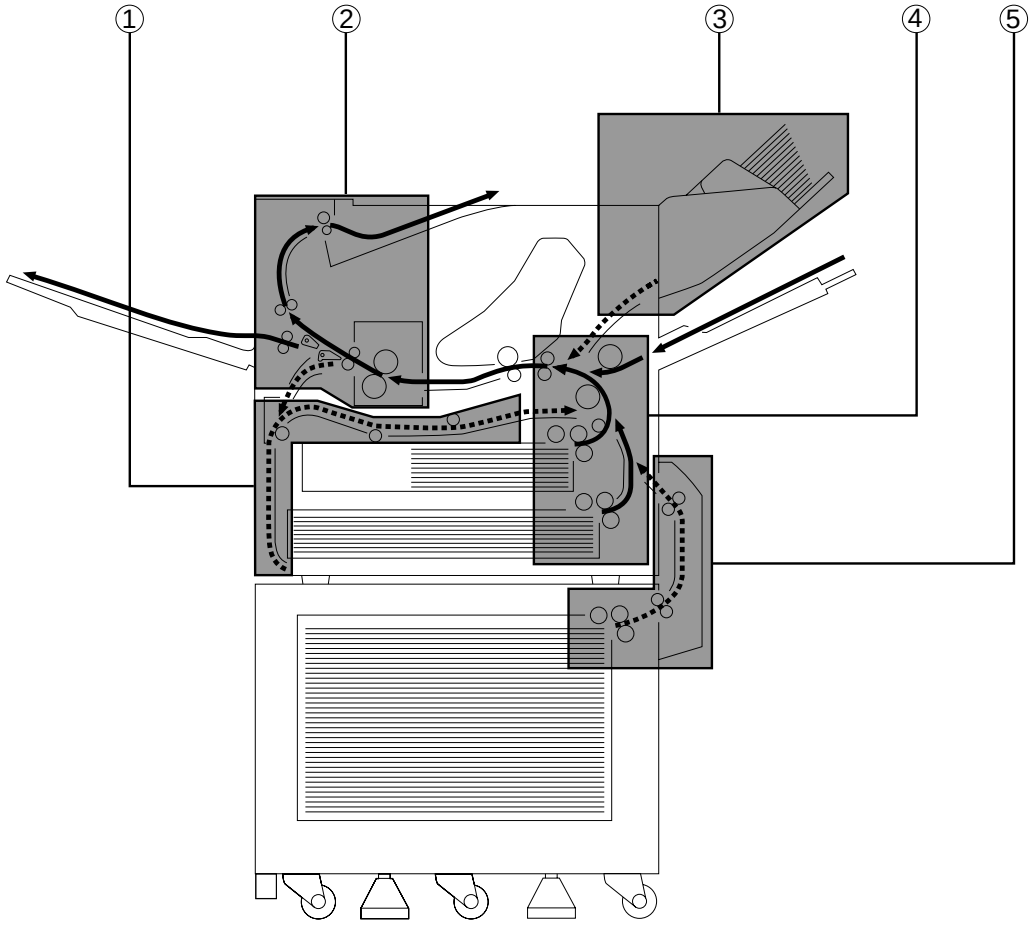


Figure 4-7-1

1. Duplexing unit
2. Fixing and delivery unit
3. Envelope feeder unit
4. Pick-up unit
5. Paper deck unit

J-1 Pick-up unit

<Possible causes>

1. The recommended paper is not being used or the paper is curled or wrinkled.
   Action: Replace the paper. Advise the customer to use recommended paper and on how to store paper.

2. If jams occur in the manual feed pick-up unit, perform step 6 and subsequent steps.

3. If jams occur in the cassette paper pick-up unit, perform step 9 and subsequent steps.

4. The registration clutch does not work properly.
   Action: Check using the steps of M-21 "Registration Roller not rotating (printer)".

5. The registration roller is worn, deformed, or dirty.
   Action: Clean the registration roller if it is dirty. Replace if worn or deformed.

6. Too much paper on the multi-purpose tray
   Action: Advise the customer not to over load the tray with paper.

7. The manual feeding pick-up roller is worn, deformed, or dirty.
   Action: Clean the manual feeding pick-up roller if it is dirty. Replace if worn or deformed.

8. The pick-up roller does not rotate when a print is being made.
   Action: Make a check using the steps of M-17 "No Paper Pick-up from Multi-purpose Tray".

9. The cassette is not positioned correctly.
   Action: Re-position the cassette properly.

10. The print paper is bent.
    Action: Replace the paper.

11. Too much paper in the cassette
    Action: Advise the customer not to are load the cassette with paper.

12. The cassette pick-up roller, separation roller, or feed roller is worn or deformed.
    Action: Replace if worn or deformed. Replace the separation roller and the feed roller together.

13. The cassette pick-up roller does not rotate when a print is being made.
    Action: Make a check using the steps of M-18 "No Paper Pick-up from Upper or Lower Cassette".

J-2 Fixing and delivery unit

<Possible causes>

1. Paper longer than the paper length set by the user was loaded during manual feeding.
   Action: Advise the user to replace it with the set paper size.

2. The fixing roller does not rotate smoothly.

Action: Check whether any gears are worn or missing.

3. The fixing entrance guide is dirty, damaged, or clogged with toner.
   Action: Clean the guide.

4. The fixing separation guide is dirty, damaged, or clogged with toner.
   Action: Clean the guide.

5. The fixing separation claw is worn or damaged.
   Action: Replace the claw.

6. The upper or fixing lower roller is deformed or damaged.
   Action: Replace deformed or damaged rollers.

7. The nip width of the fixing lower unit is not correct.
   Action: Replace the fixing unit.

8. The fixing unit delivery sensor arm does not move smoothly or is damaged.
   Action: Adjust the arm so that it moves smoothly. If it is damaged, replace it.

9. The fixing unit delivery roller is worn.
   Action: Replace the fixing unit delivery roller.

10. The fixing unit delivery roller does not rotate smoothly.
    Action: Check whether any gears are worn or missing.

11. The face-down delivery roller does not rotate smoothly.
    Action: Check whether any gears are worn or missing.

J-3 Duplexing Unit

<Possible causes>

1. Foreign matter is adhering to the feed guide or it is burred.
   Action: Remove any foreign matter. If the guide is burred, replace it.

2. The switchback roller, feed roller, or duplex feed roller is worn or deformed.
   Action: Replace worn or deformed rollers.

3. Paper dust or dirt is adhering to rollers.
   Action: Remove the paper dust or dirt.

4. Gears are worn or damaged.
   Action: Replace any worn or damaged gears.

5. Sensor arms do not move smoothly or are damaged.
   Action: Adjust the arm so that they move smoothly. If damaged, replace them.

6. Duplexing unit sensors are defective.
   Action: Check the state of each sensor using the printer driver tester. Replace any defective sensors.

J-4 Envelope Feeder

<Possible causes>

1. The recommended envelopes are not being used.
   Action: Advise the customer to use the recommended envelopes.

2. Too many envelopes in the envelope feeder
   Action: Tell the customer not to over load the envelope feeder with envelopes.

3. The envelope guide is pressing against the envelopes.
   Action: Advise the customer not to set the envelope guide too close to the envelopes.

4. Envelope feeder rollers are worn or deformed.
   Action: Replace any worn or deformed envelope feeder rollers.

5. The envelope feeder roller does not rotate when a print is being made.
   Action: Make a check using the steps of M-19 "No Paper Pick-up from Envelope Feeder".

J-5 Paper Deck

<Possible causes>

1. Paper is not correctly loaded in the paper deck.
   Action: Reload correctly.

2. The side and end guides are not inserted correctly. (For example, when feeding A4 size paper, if the end paper guide has not been inserted the paper deck presumes that A3 paper is to be fed, causing a paper jam due to a difference in timing.
   Action: Insert the guides correctly.

3. Paper is folded.
   Action: Replace the paper.

4. More paper than the specified amount is loaded in the paper deck.
   Action: Advise the customer to load the correct amount of paper.

5. Pick-up, separation or feed roller worn or deformed.
   Action: Replace if worn or deformed. Be sure to replace the separation and feed rollers together.

6. Paper deck pick-up roller not rotating during printing.
   Action: Check according to instructions in M-20 "No paper pick-up form Paper Deck".

B. Incomplete Paper Feed

T-1 Multiple Paper Feed

<***Possible causes***>

1. The recommended paper is not being used.
   Action: Replace the paper. Advise the customer to use the recommended paper.

2. If this problem occurs with the multi-purpose tray, perform step 5 and subsequent steps.

3. The separation roller is worn or deformed.
   Action: Replace the separation roller.

4. The spring is defective.
   Action: Replace the spring that pulls the separation roller.

5. The separation pad surface is worn.
   Action: Replace the separation pad.

6. The spring is defective.
   Action: Replace the spring of the separation pad.

T-2 Wrinkles

<***Possible causes***>

1. The recommended paper is not being used.
   Action: Replace the paper. Advise the customer to use the recommended paper.

2. The paper is damp.
   Action: Advise the customer on how to store paper to prevent it from dampening.

3. The separation roller is worn or deformed.
   Action: Open the upper cover before a sheet of paper enters the fixing unit. If there are wrinkles on the paper at this point or the paper is skewed, check the pick-up unit.

4. The fixing entrance guide is dirty.
   Action: Clean the guide.

5. The fixing lower roller is dirty.
   Action: Replace the fixing lower roller.

6. The fixing roller is deformed or worn.
   Action: Replace the worn or deformed roller.

T-3 Bent leading edge

<***Possible causes***>

1. The recommended paper is not being used. The paper is curled or wrinkled.
   Action: Replace the paper. Advise the customer to use the recommended paper and on how to store paper.

2. Too much paper loaded in the paper feed slot
   Action: Advise the customer not to over load the paper feed slot with paper.

3. The paper guide is worn or deformed.
   Action: Check the paper feed path, and replace the guide if it is damaged or deformed.

T-4 Skewing

<Possible causes>

1. The recommended paper is not being used.
   Action: Replace the paper. Advise the customer to use the recommended paper.

2. Too much paper on the paper feed slot
   Action: Tell the customer not to over load the paper feed slot with paper.

3. The print paper is not loaded correctly.
   Action: Load it correctly so that it is aligned with the guide edge of the multi-purpose tray.

4. Paper dust or dirt is adhering to the registration rollers or the feed guide.
   Action: Remove the paper dust or dirt.

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VIII. LOCATION OF ELECTRICAL PARTS/FUNCTION

A. Switches

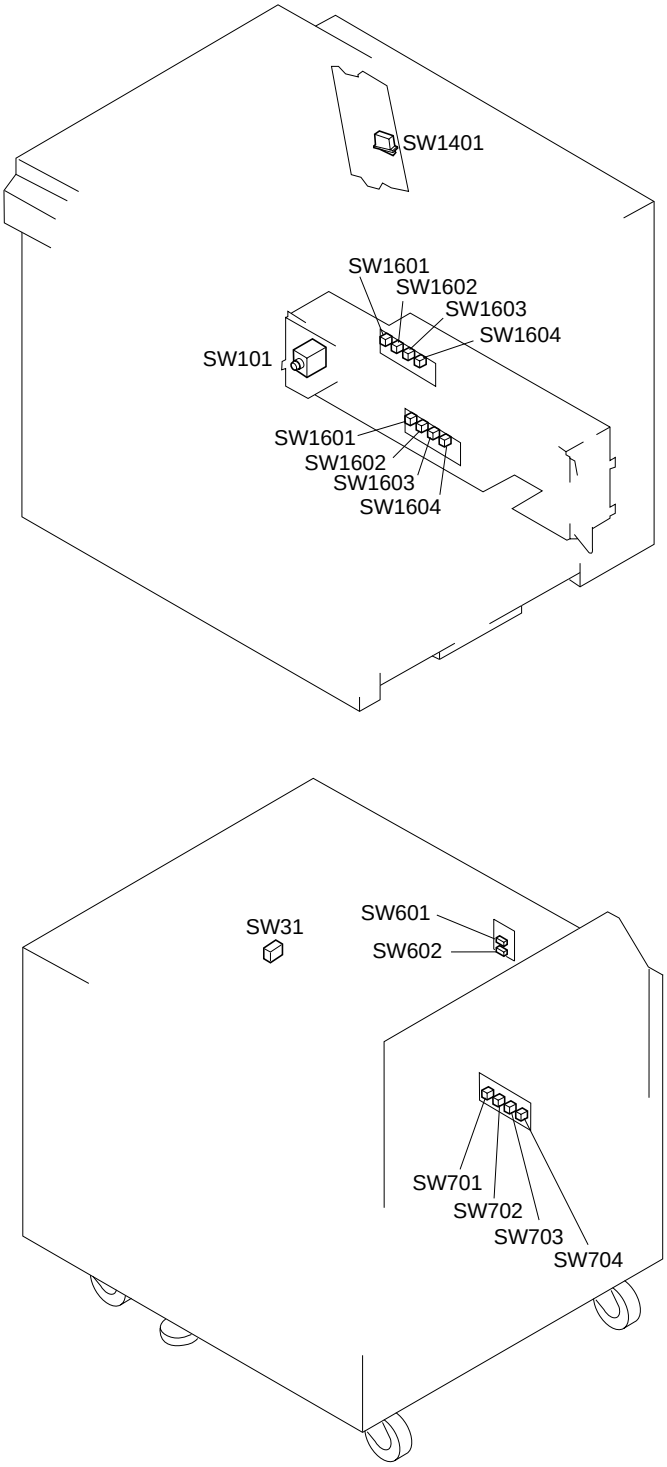
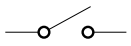


Figure 4-8-1

Table 4-8-1

Symbol	Name	Code	Role
	Switch	SW101	Power switch
		SW1401	Door switch
		SW1601	Lower cassette-size sensing switch
		SW1602	Lower cassette-size sensing switch
		SW1603	Lower cassette-size sensing switch
		SW1604	Lower cassette-size sensing switch
		SW1601	Upper cassette-size sensing switch
		SW1602	Upper cassette-size sensing switch
		SW1603	Upper cassette-size sensing switch
		SW1604	Upper cassette-size sensing switch
		SW31	Lifter abnormal position sensing switch (paper deck)
		SW601	Paper-level sensing switch (paper deck)
		SW602	Paper-level sensing switch (paper deck)
		SW701	Paper-size sensing switch (paper deck)
		SW702	Paper-size sensing switch (paper deck)
		SW703	Paper-size sensing switch (paper deck)
		SW704	Paper-size sensing switch (paper deck)

B. Sensors

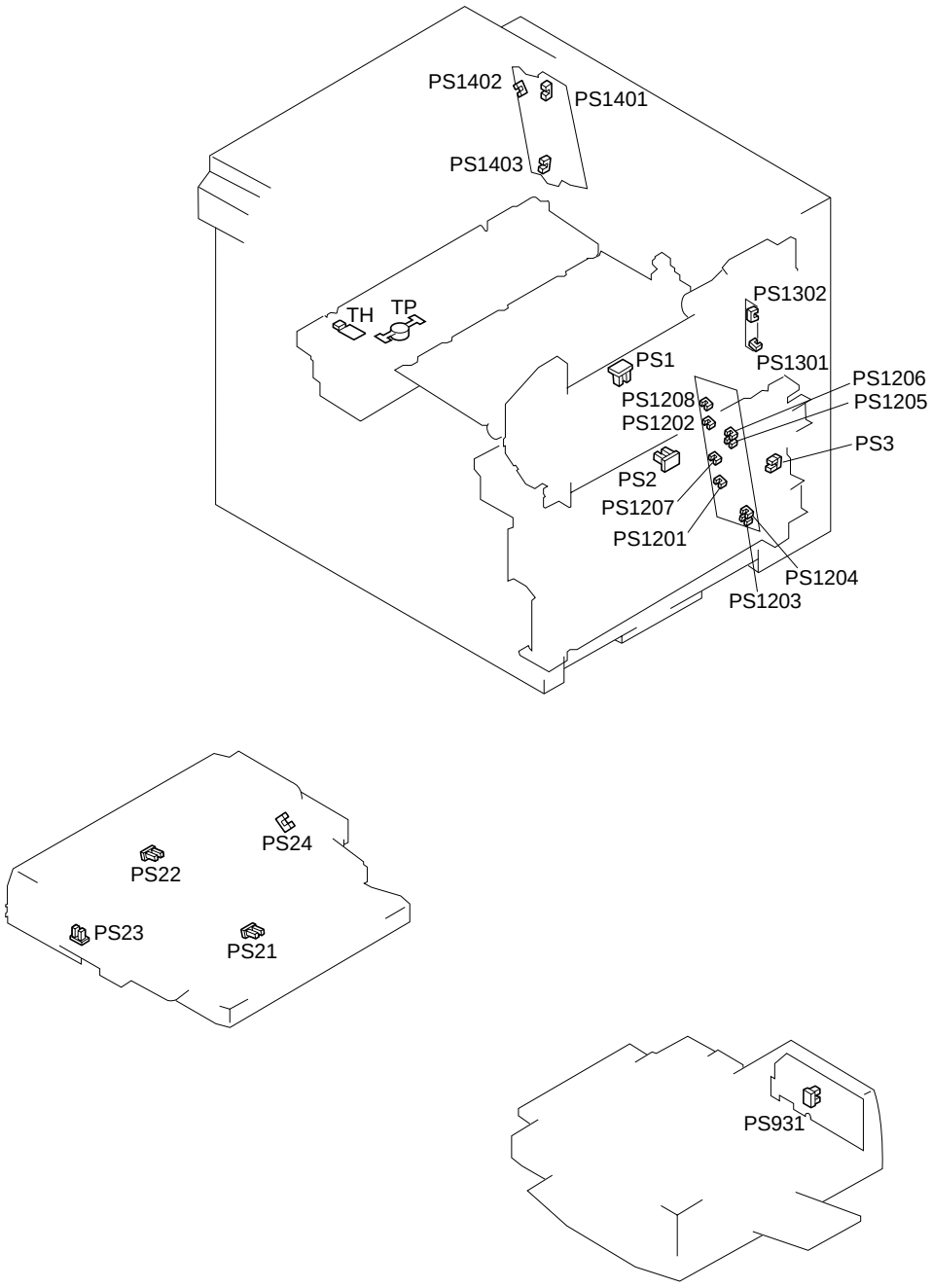
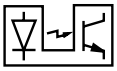


Figure 4-8-2

Table 4-8-2

Symbol	Name	Code	Role
	Photointerrupter	PS1	Registration paper sensor
		PS2	Pick-up unit paper sensor
		PS3	Right door sensor
		PS1201	Lower cassette sensor
		PS1202	Upper cassette sensor
		PS1203	Lower cassette paper-level sensor 1
		PS1204	Lower cassette paper-level sensor 2
		PS1205	Upper cassette paper-level sensor 1
		PS1206	Upper cassette paper-level sensor 2
		PS1207	Lower cassette paper-out sensor
		PS1208	Upper cassette paper-out sensor
		PS1301	Multi-purpose tray paper sensor
		PS1302	Lifting plate position sensor
		PS1401	Face-down tray paper full sensor
		PS1402	Face-down tray delivery sensor
		PS1403	Fixing unit delivery sensor
		PS21	Duplexing unit paper sensor (duplexing unit)
		PS22	Switchback sensor (duplexing unit)
		PS23	Side registration guide home position sensor (duplexing unit)
		PS24	Duplex feed roller 1 home position sensor (duplexing unit)
		PS931	Envelope feeder paper sensor (envelope feeder)
	Thermistor	TH	Detects the fixing upper roller surface temperature.
	Thermoswitch	TP	Detects the fixing upper roller abnormal temperature.

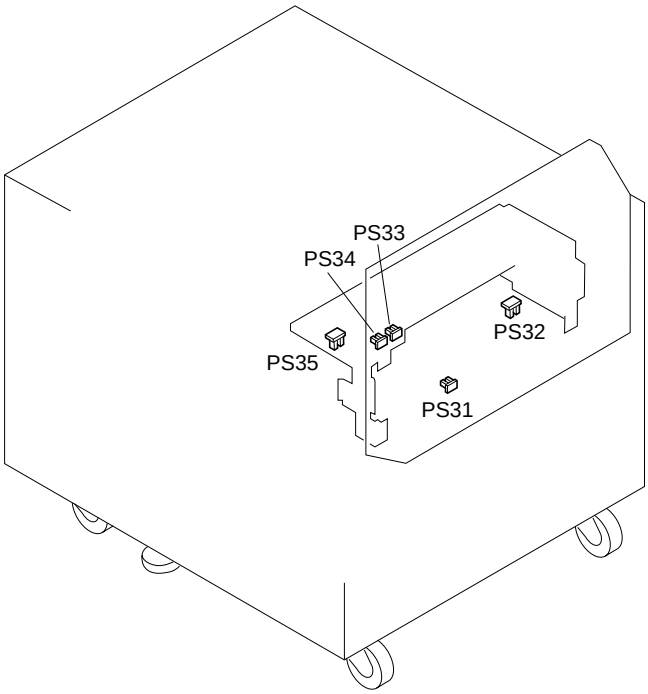
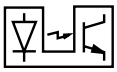


Figure 4-8-3

Table 4-8-3

Symbol	Name	Code	Role
	Photointerrrupter	PS31	Registration paper sensor (paper deck)
		PS32	Paper jam sensor (paper deck)
		PS33	Tray paper-out sensor (paper deck)
		PS34	Paper surface sensor (paper deck)
		PS35	Door sensor (paper deck)

C. Clutches and Solenoids

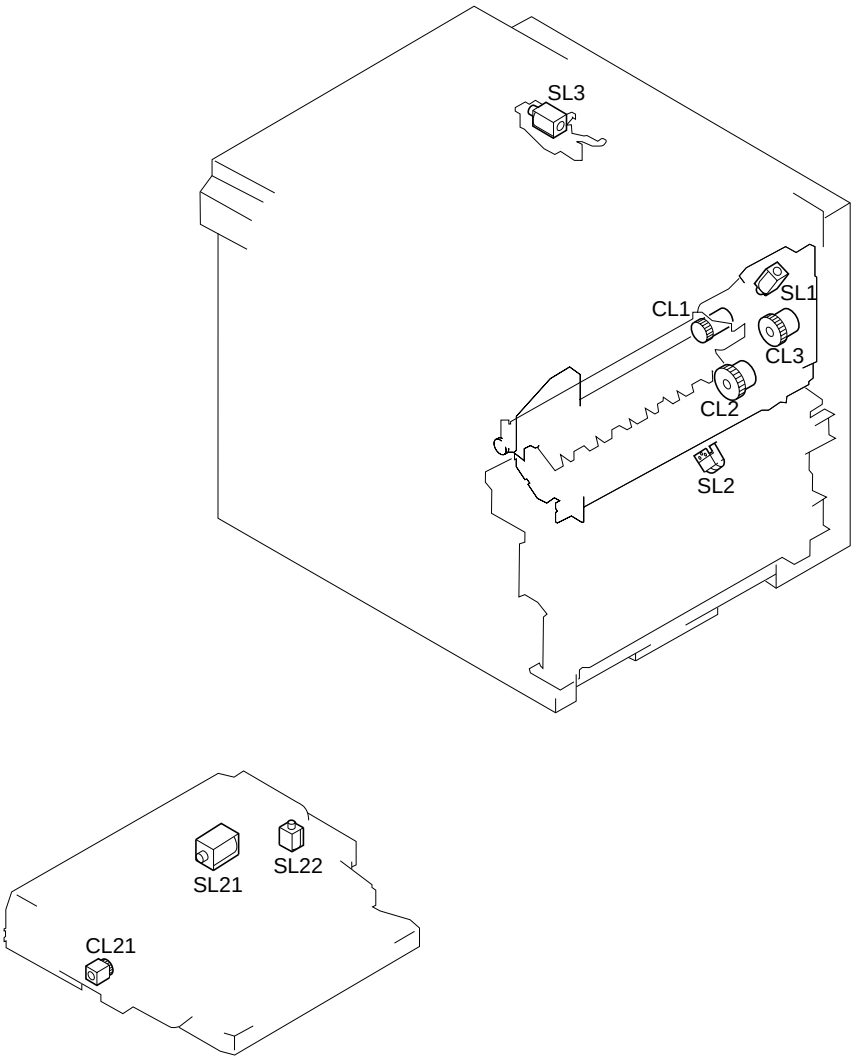


Figure 4-8-4

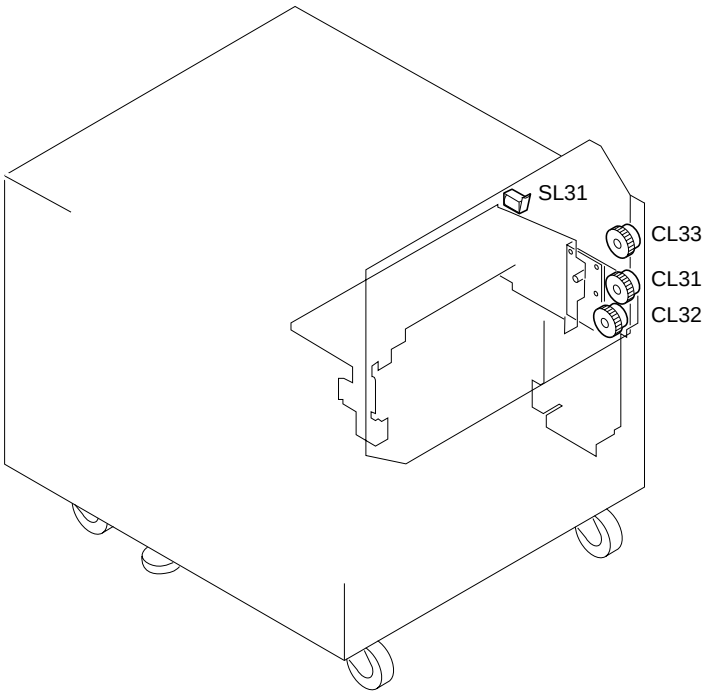


Figure 4-8-5

Table 4-8-4

Symbol	Name	Code	Role
CL	Clutch	CL1	Registration clutch
		CL2	Feed clutch
		CL3	Manual feed clutch
		CL21	Duplex feed clutch (duplexing unit)
		CL31	Lifter clutch (paper deck)
		CL32	Registration clutch (paper deck)
		CL33	Feed clutch (paper deck)
	Solenoid	SL1	Cassette pick-up solenoid
		SL2	Lifting plate solenoid
		SL3	Face-up solenoid
		SL21	Switchback roller release solenoid (duplexing unit)
		SL22	Duplex deflector drive solenoid (duplexing unit)
		SL31	Pick-up solenoid (paper deck)

D. Motor and Others

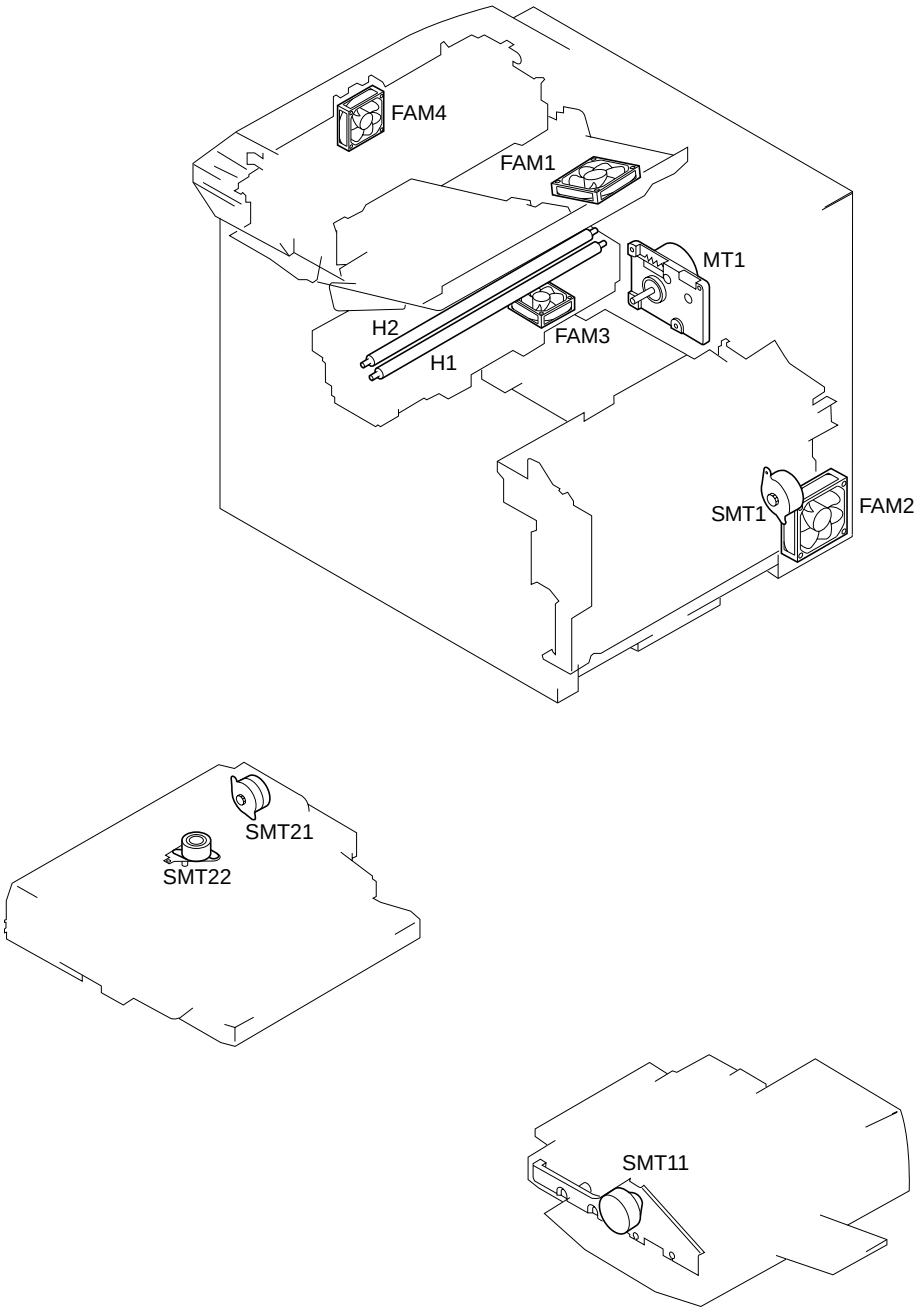


Figure 4-8-6

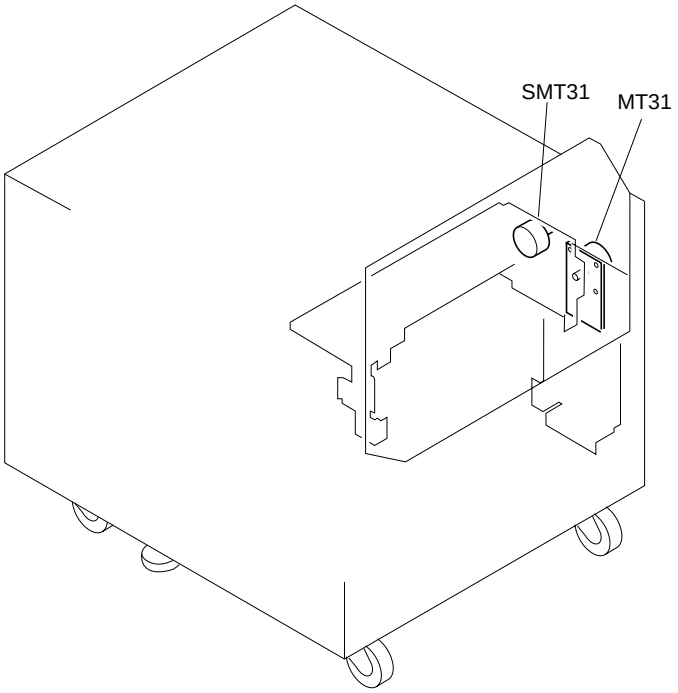


Figure 4-8-7

Table 4-8-5

Symbol	Name	Code	Role
M	Motor	MT1	Main motor
		SMT1	Pick-up motor
		SMT11	Envelope feeder pick-up motor (envelope feeder)
		SMT21	Switchback motor (duplexing unit)
		SMT22	Side registration motor (duplexing unit)
		SMT31	Pick-up motor (paper deck)
		MT31	Deck motor (paper deck)
	Fan motor	FAM1	Fixing unit/Scanner unit fan
		FAM2	Power supply fan
		FAM3	Electrical unit fan
		FAM4	Fixing unit fan
	Fixing heater	H1	Fixing main heater
		H2	Fixing sub heater

E. PC Boards

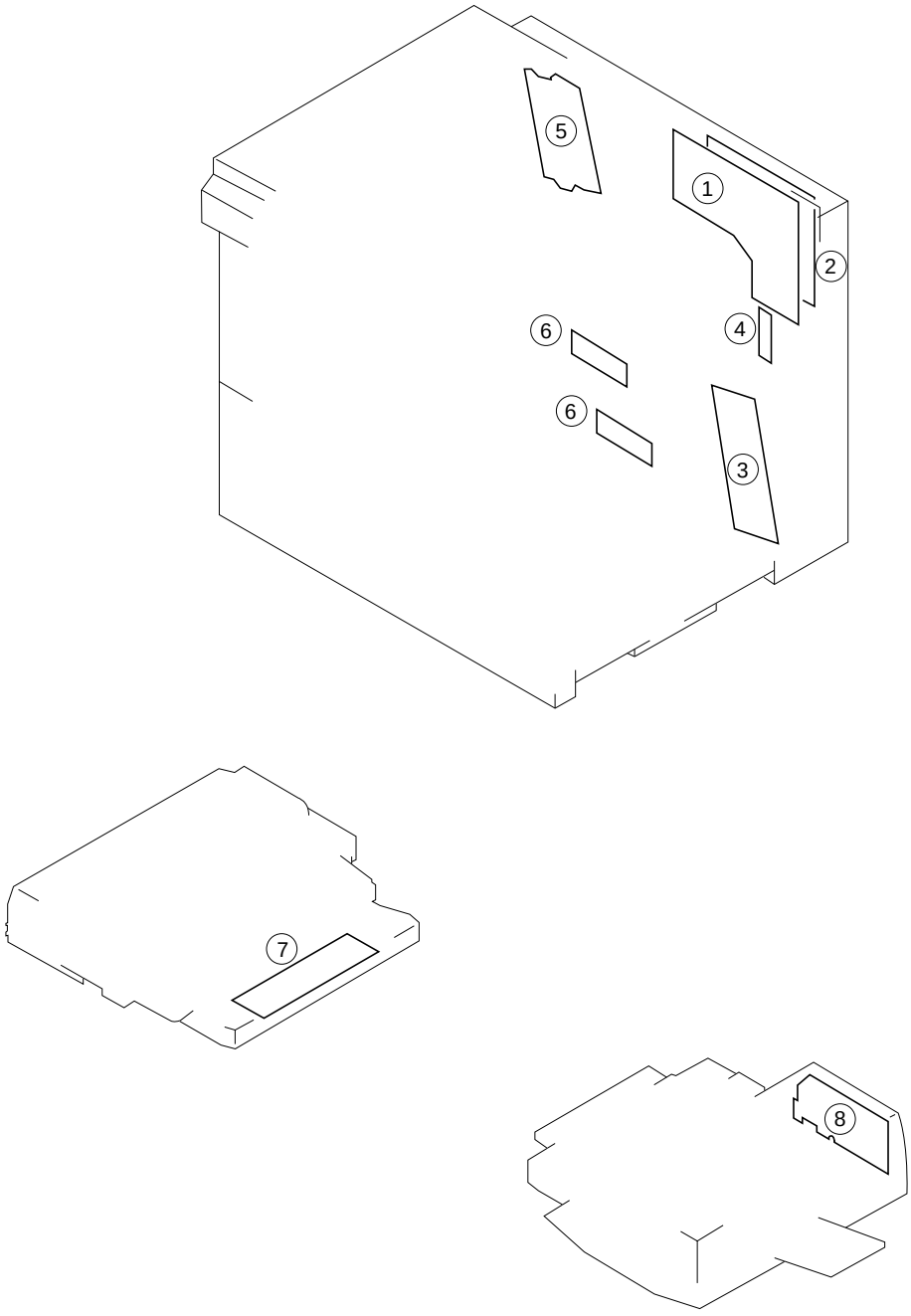


Figure 4-8-8

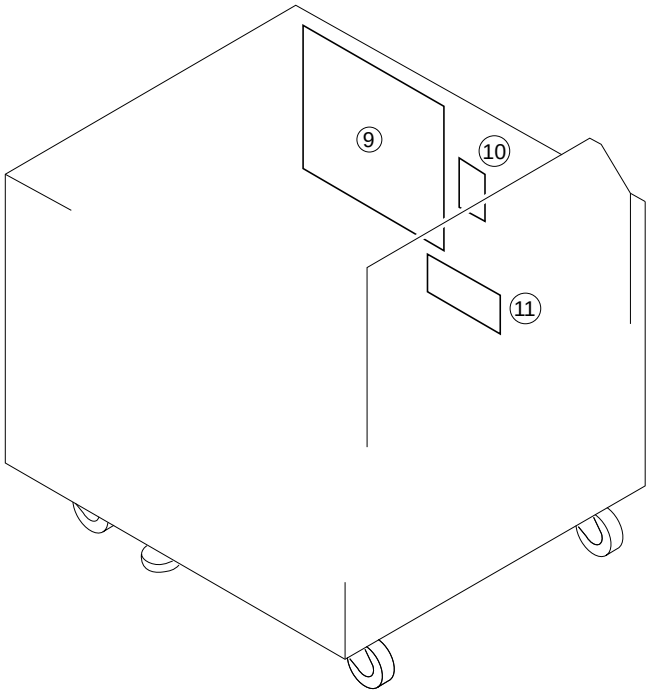


Figure 4-8-9

Table 4-8-6

No.	Name	Function
1	DC controller PCB	Controls print sequence
2	High-voltage power supply PCB	Outputs primary, developing, transfer and separation voltages (bias) according to the print sequence.
3	Pick-up PCB	Relays signals between sensors, loads and the DC controller PCB.
4	Multi-purpose tray PCB	Relays signals between sensors, loads and the DC controller PCB.
5	Switch/sensor PCB	Relays signals between sensors, loads and the DC controller PCB.
6	Cassette size detection PCB	Cassette size detection
7	Duplexing driver PCB	Controls loads in the duplexing unit and sensors.
8	Envelope feeder driver PCB	Controls the envelope feeder motor and sensors.
9	Paper deck driver PCB	Controls of motors, solenoid and clutches and detection inside thepaper deck.
10	Paper-level sensing switch PCB	Paper level detection (paper deck)
11	Paper-size sensing switch PCB	Paper size detection (paper deck)

F. Connectors

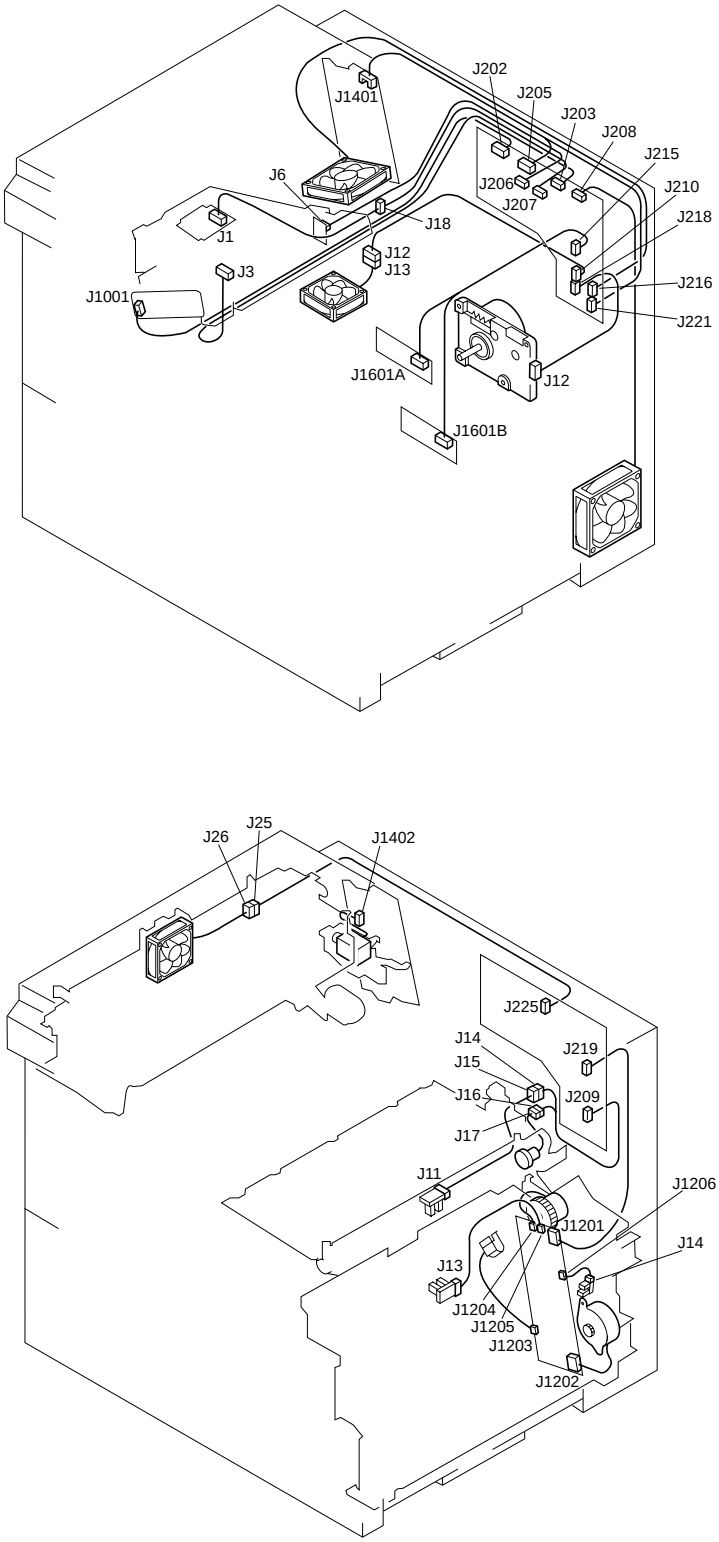


Figure 4-8-10

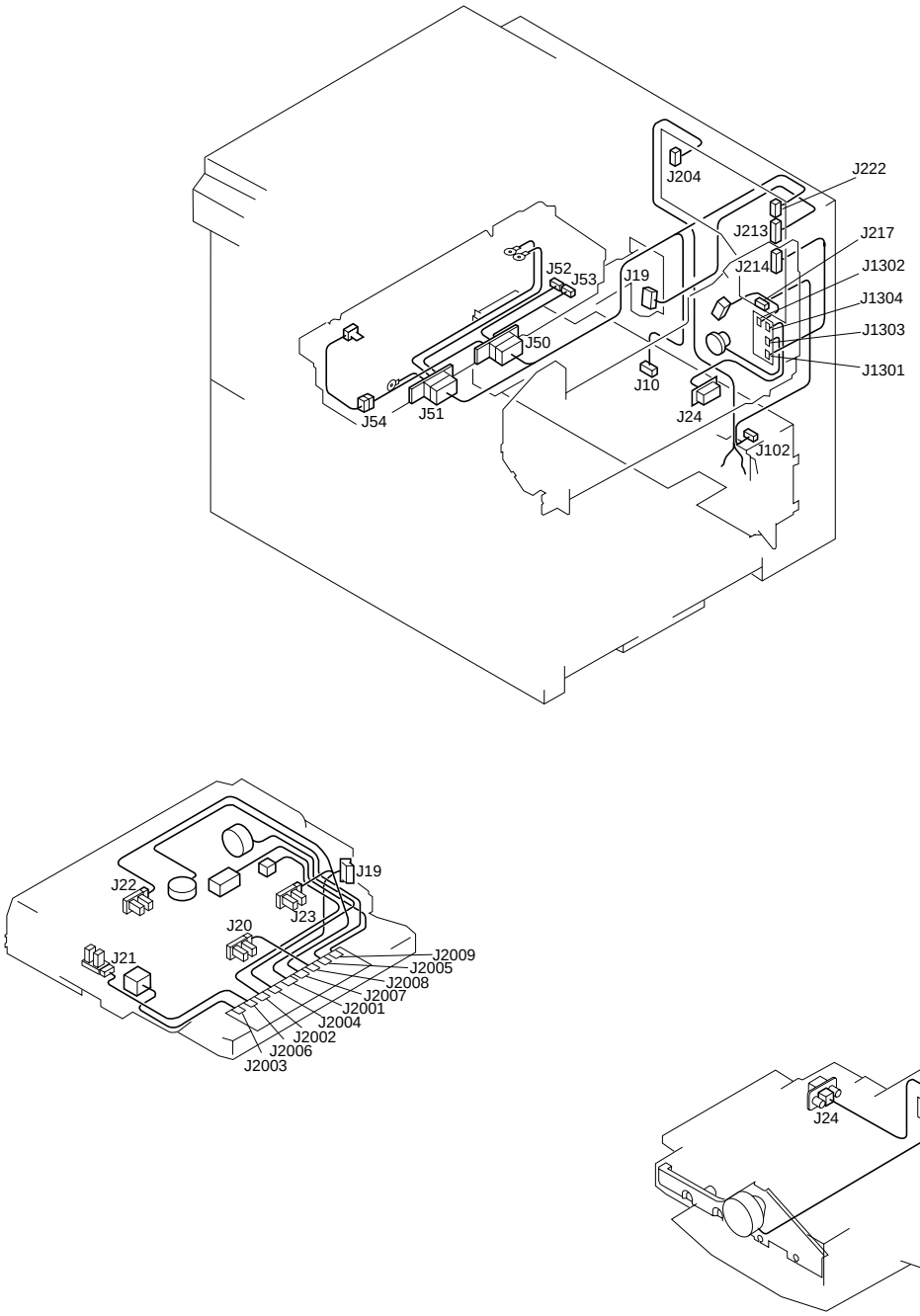

J204
J222
J213
J217
J214
J1302
J52
J53
J19
J1304
J1303
J50
J1301
J10
J24
J54
J51
J102
J19
J22
J23
J20
J21
J2009
J2005
J2008
J2007
J2001
J2004
J2002
J2006
J2003
J931
J24
J932

Figure 4-8-11

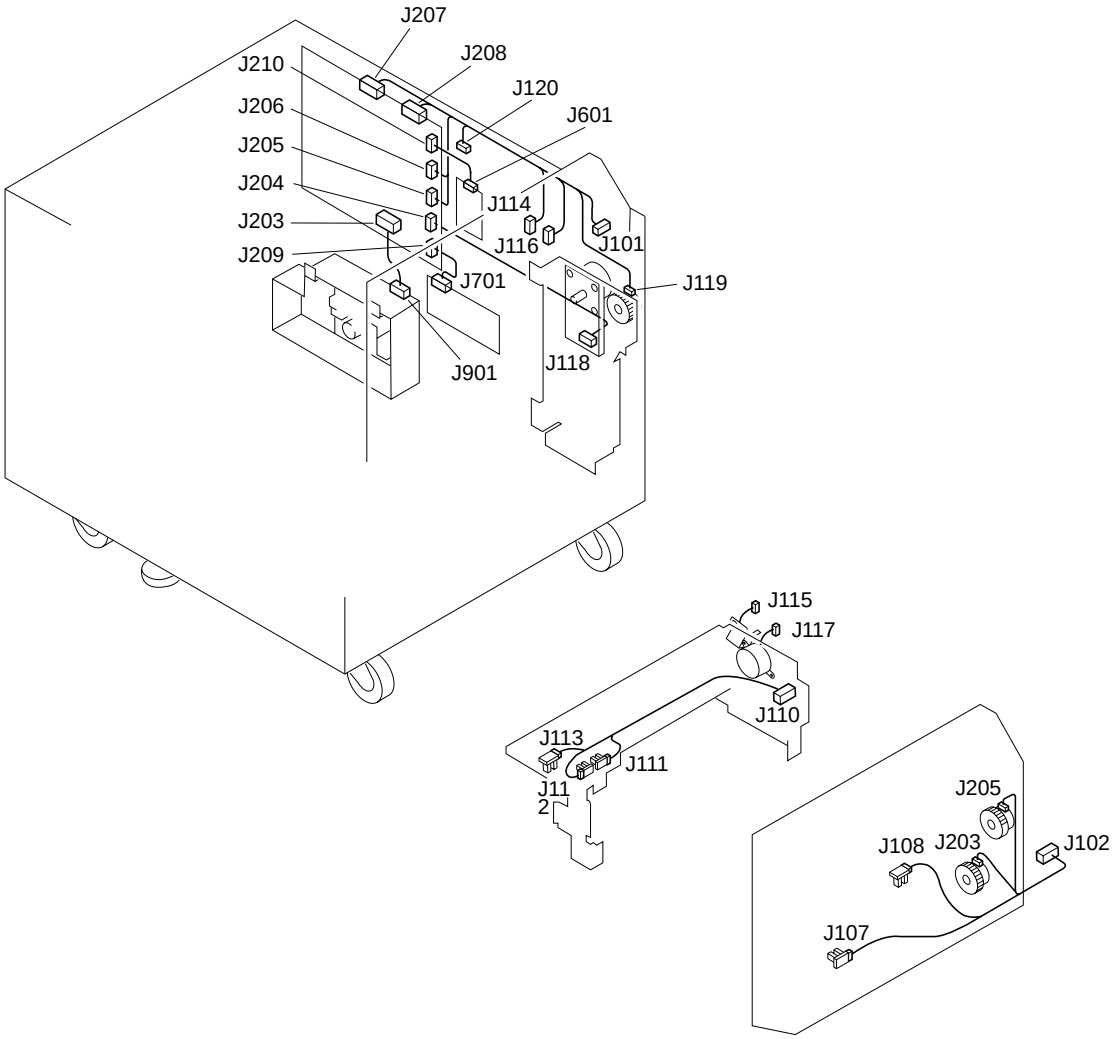

J207
J208
J210
J120
J206
J601
J205
J204
J114
J203
J116
J101
J209
J701
J119
J901
J118
J115
J117
J110
J113
J111
J11
2
J205
J108
J203
J102
J107

Figure 4-8-12

IX. VARIABLE RESISTORS, LEDS, TEST PINS, JUMPERS, AND SWITCHES ON PC BOARDS

Variable resistors (VRs), LED indicators, test pins, jumpers, and switches required in after-sales service are listed below.

Any variable resistors, test pins, etc. not listed below are for factory use. They require special tools and measuring instruments, and must be set with high precision. Do not touch them during after-sales service.

Notes: **1.** Some LEDs receive leakage current during normal operation, causing a dim glow even when they should be OFF.

2. Potentiometers which may be adjusted in after-sales service are marked .....

Potentiometers which may not be adjusted in after-sales service are marked .....

A. DC Controller PCB

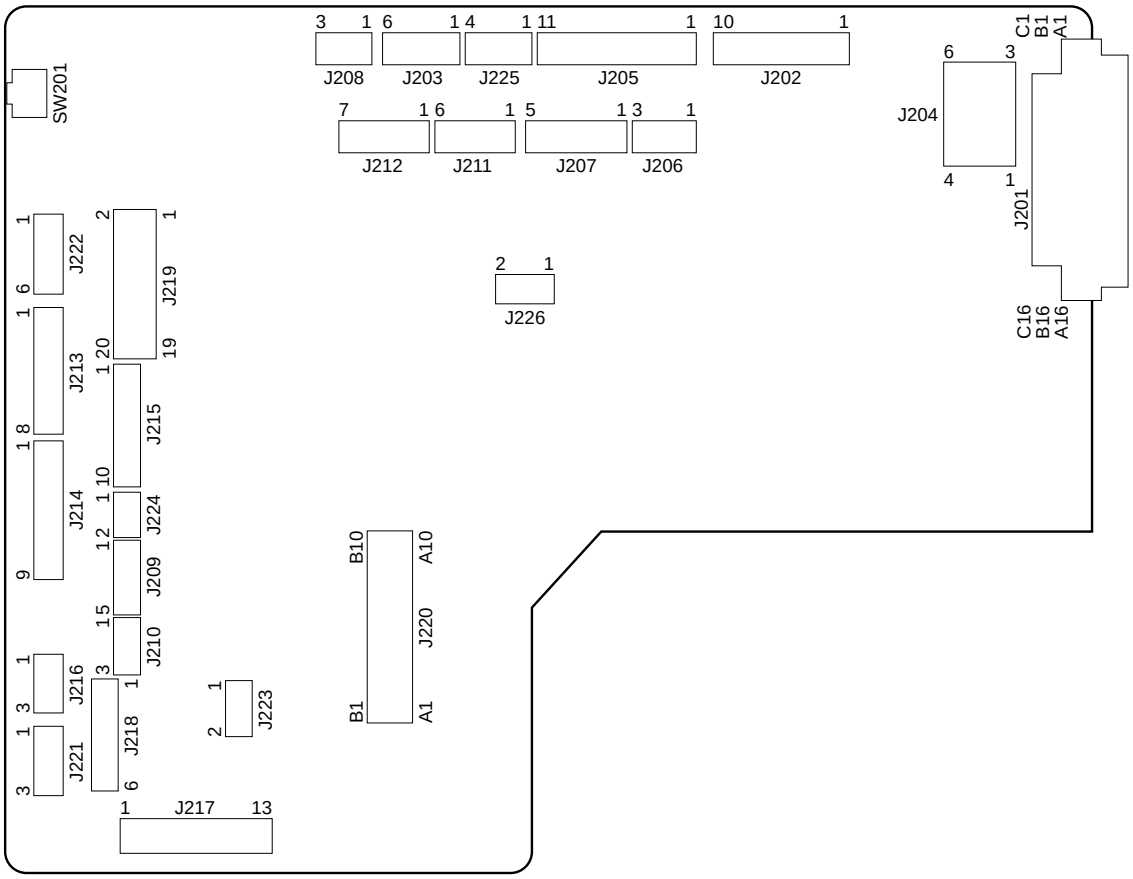


Figure 4-9-1

Table 4-9-1

SW No.	Function
SW201	Test print switch

B. Switch/Sensor PCB

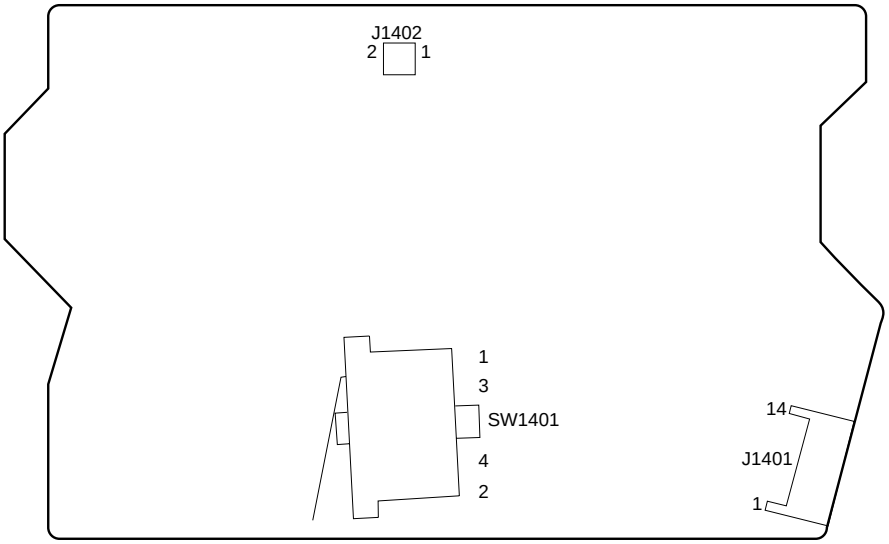


Figure 4-9-2

Table 4-9-2

SW No.	Function
SW1401	Door switch

C. Cassette Paper-size Sensing Switch PCB

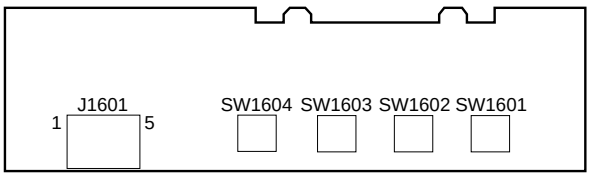


Figure 4-9-3

Table 4-9-3

SW No.	Function
SW1601	Cassette paper-size sensing switch (See table 2-5-1 of page 2-45.)
SW1602	
SW1603	
SW1604	

D. High-voltage Power Supply PCB

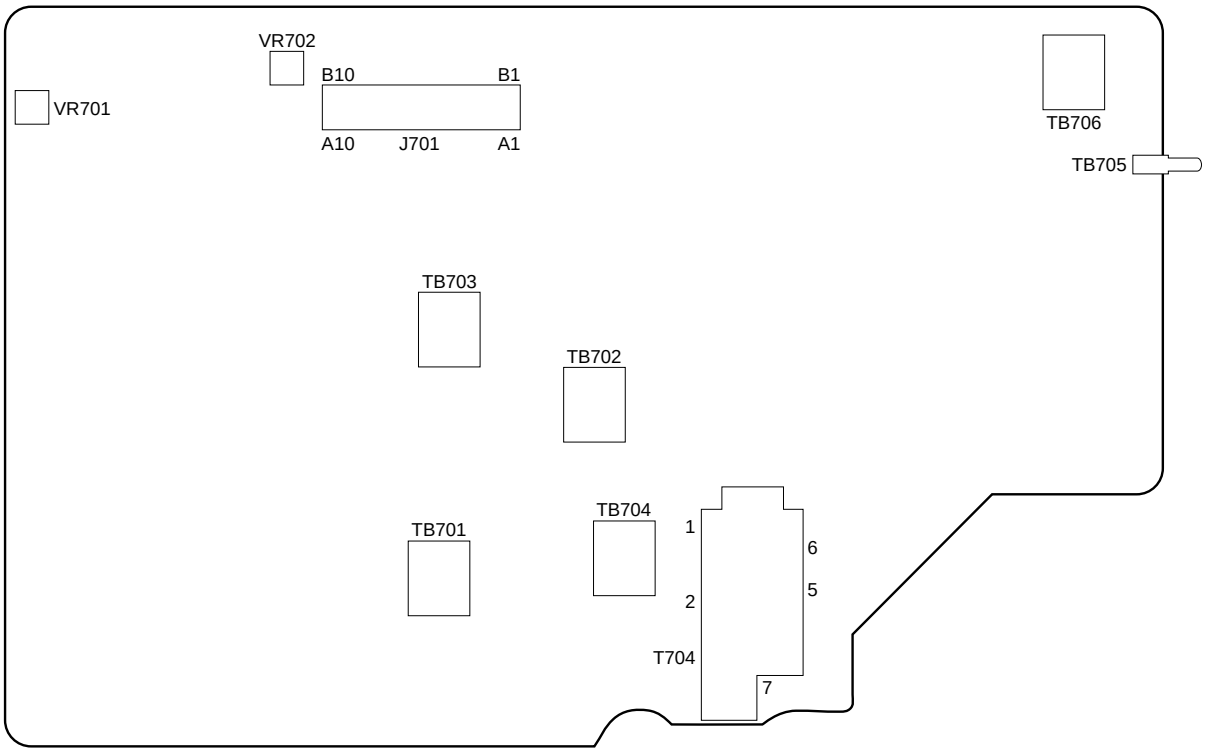


Figure 4-9-4

Table 4-9-4

VR No.	Function
VR701	For factory use
VR702	

E. Video Controller PCB

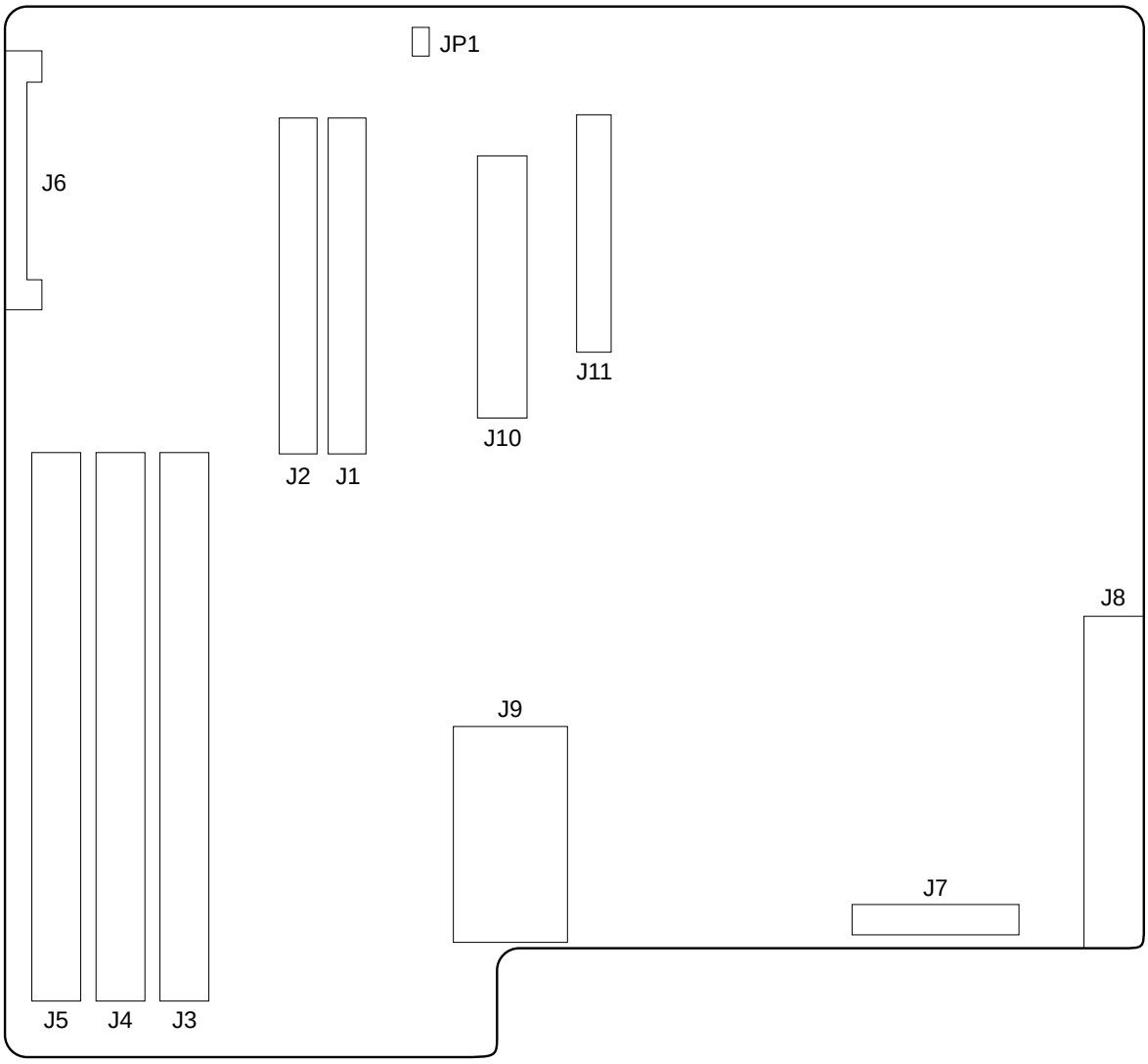


Figure 4-9-5

Table 4-9-5

JP No.	Function
JP1	For factory use

F. Envelope Feeder Driver PCB

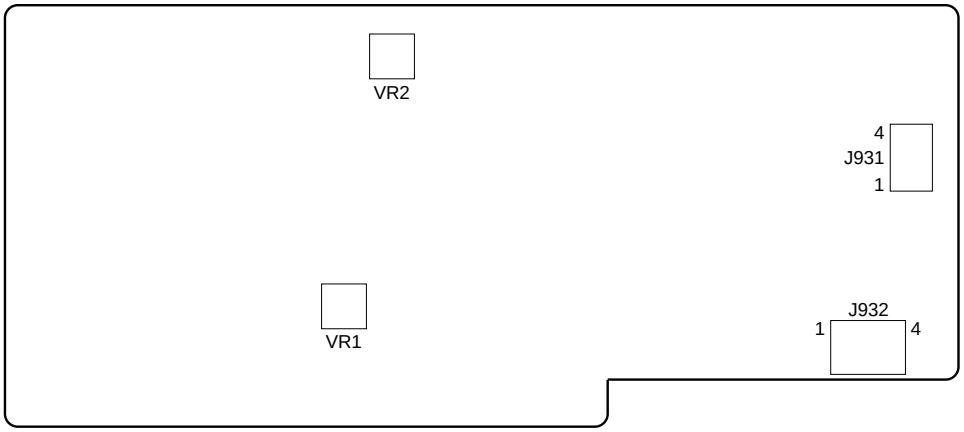


Figure 4-9-6

Table 4-9-6

VR No.	Function
VR1	For factory use
VR2	

G. Option Controller PCB

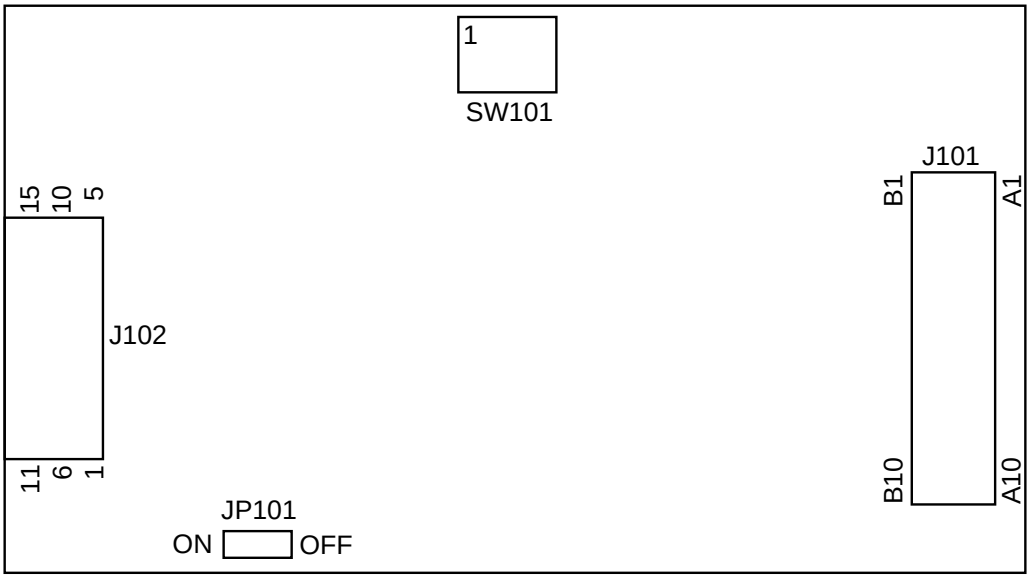


Figure 4-9-7

Table 4-9-7

SW No.	Function
SW101	For factory use

Table 4-9-8

JP No.	Function
JP101	For factory use

H. Paper Deck Driver PCB

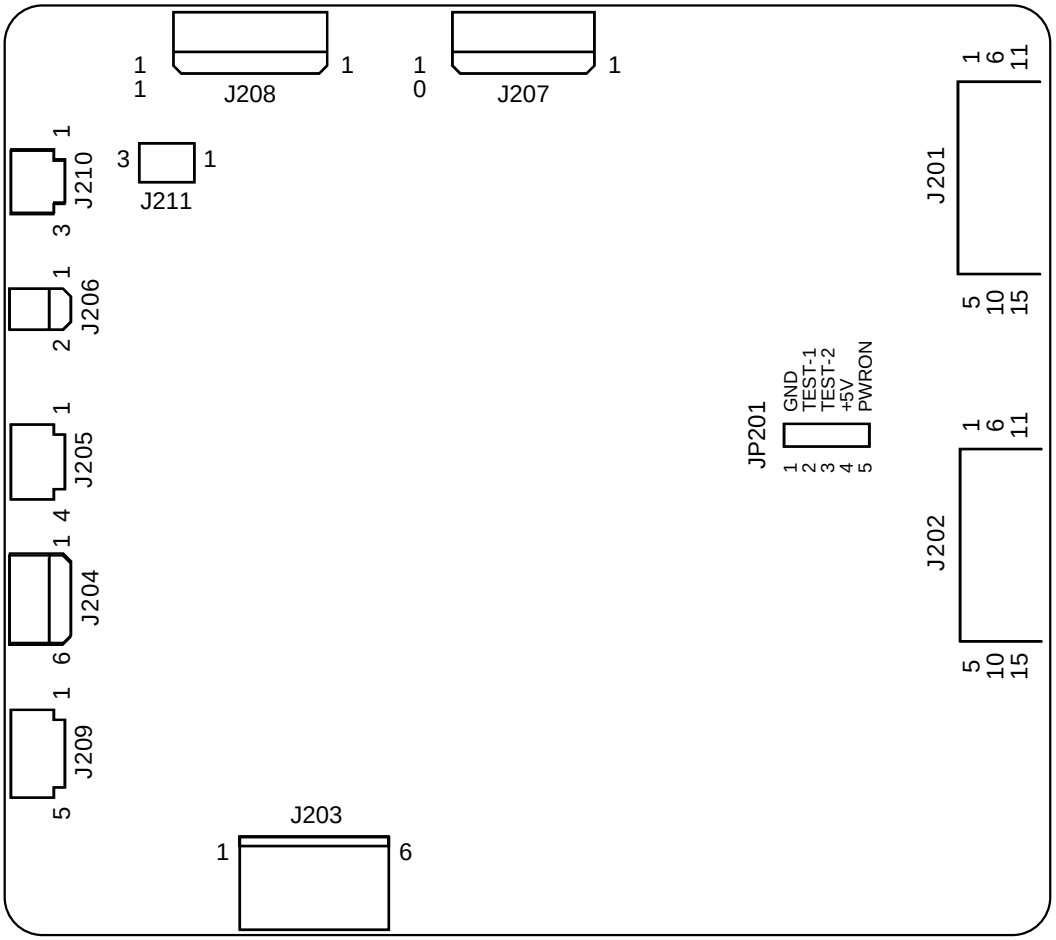


Figure 4-9-8

Table 4-9-9

Jumper No.	Function
JP201-1	GND
-2	TEST-1: Jumper to enter the test mode.
-3	TEST-2: reserved
-4	+5V
-5	PWRON-IN signal

After shorting out TEST-1 and GND, and turning ON the printer, test mode is entered. Once in test mode, the paper pick-up operation runs continuously as long as TEST-1 and GND are shorted and paper is loaded. If TEST-1 and GND are opened the test mode is canceled, stopping the paper pick-up operation. To re-enter the test mode and continue the pick-up process, short TEST-1 and GND again.

Notes: 1. Even though the paper deck enters test mode and runs the pick-up operation, the printer does not operate. Therefore, if paper is picked-up and fed into the printer

itself, a jam will occur. **For this reason it is important that care is taken while operating the test mode to only load one sheet of paper at a time in the tray. If multiple sheets are loaded in the tray, the paper deck will continuously feed paper into the printer until running out causing a paper jam.**

2. Test mode will not be entered if the power is turned ON before shorting TEST-1 and GND.
3. **Test-1 must be left open.**

I. Paper-level Sensing Switch PCB

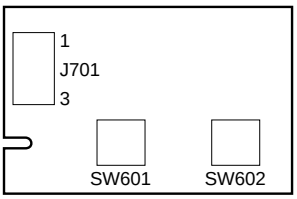


Figure 4-9-9

Table 4-9-10

SW No.	Function
SW601	Paper level sensing switch (See table 2-10-1 of page 2-87.)
SW602	

J. Paper-size Sensing Switch PCB

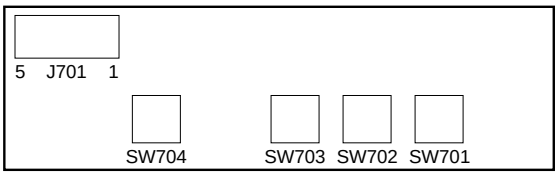


Figure 4-9-10

Table 4-9-11

SW No.	Function
SW701	Paper-size sensing switch (See table 2-10-2 of page 2-87.)
SW702	
SW703	
SW704	

X. LIST OF LUBRICANTS, CLEANERS

Table 4-10-1

No.	Material name	Components	Use	Remarks
1	Alcohol: ethyl (pure or denatured) or isopropyl (pure or denatured)	C_2H_5OH, $(CH_3)_2CHOH$	Cleaning: plastic, rubber, external parts	• Purchase locally • Flammable: keep away from flame
2	MEK (methyl ethyl ketone)	$CH_3CO\text{-}C_2H_5$	Cleaning: oil and toner stains	• Purchase locally • Highly flammable: keep away from flame
3	Lubricating oil	Petroleum mineral oil	Apply between gear and shaft	• Tool No. CK-8003 (100 ml bottle)
4	Lubricating agent	Special oil Special solid lubricating material Lithium soap	Apply to gears	• Tool No. HY9-0007 (20 g tube)
5	Lubricating agent	Lithium oil	Apply to gears of the pick-up unit	• Tool No. CK-8005 (40 g bottle)
6	Lubricating agent	Synthetic oil Special thickener	Apply to gears of the manual feed pick-up unit	• Tool No. CK-8004 (40 g bottle)

APPENDIX

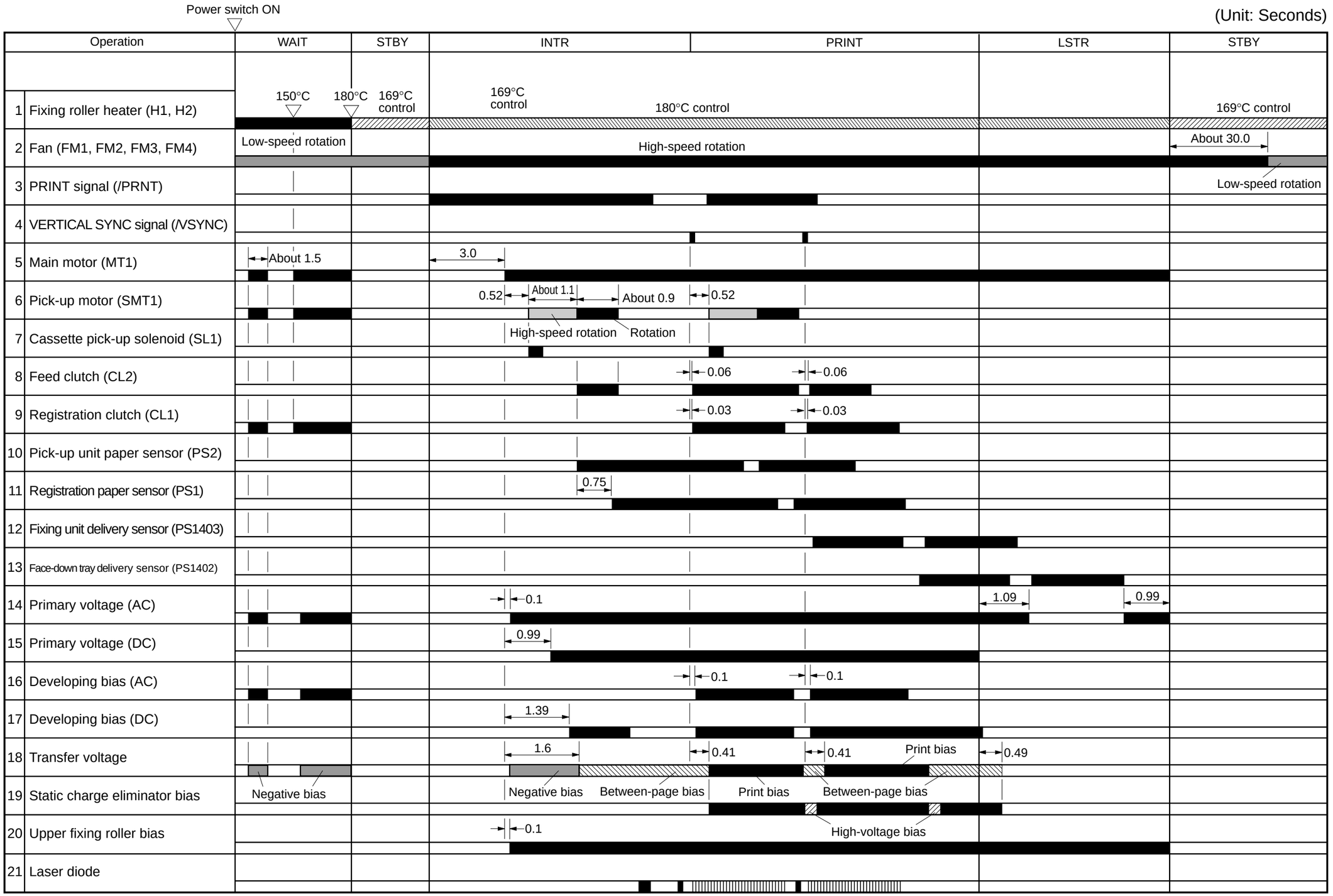
I. GENERAL TIMING CHART A-1

II. GENERAL CIRCUIT DIAGRAM.... A-3

III. LIST OF SIGNALS A-7

• Timing chart for two consecutive prints on A4 paper (Lower cassette feed - face-down tray delivery)

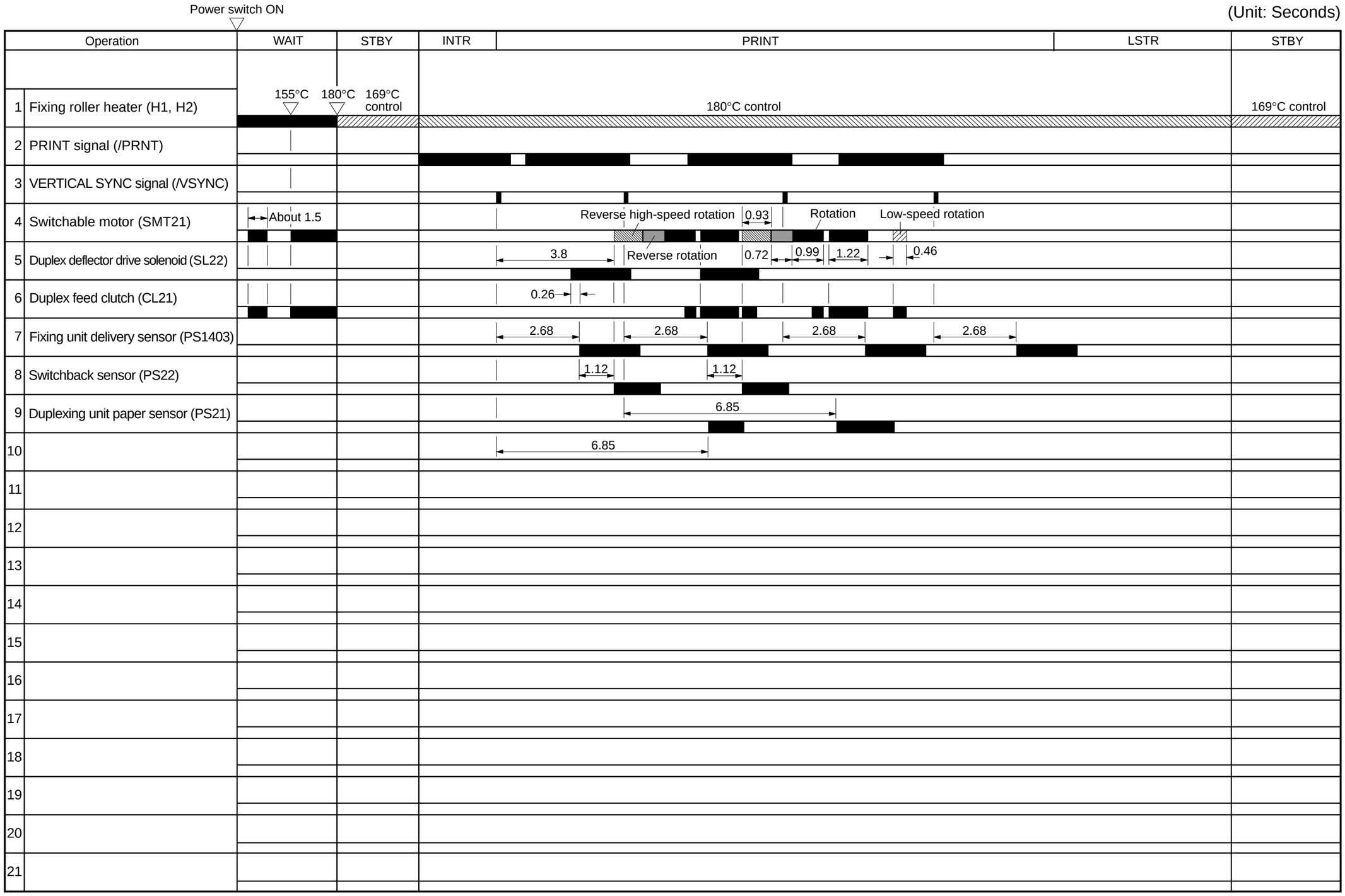
(Unit: Seconds)



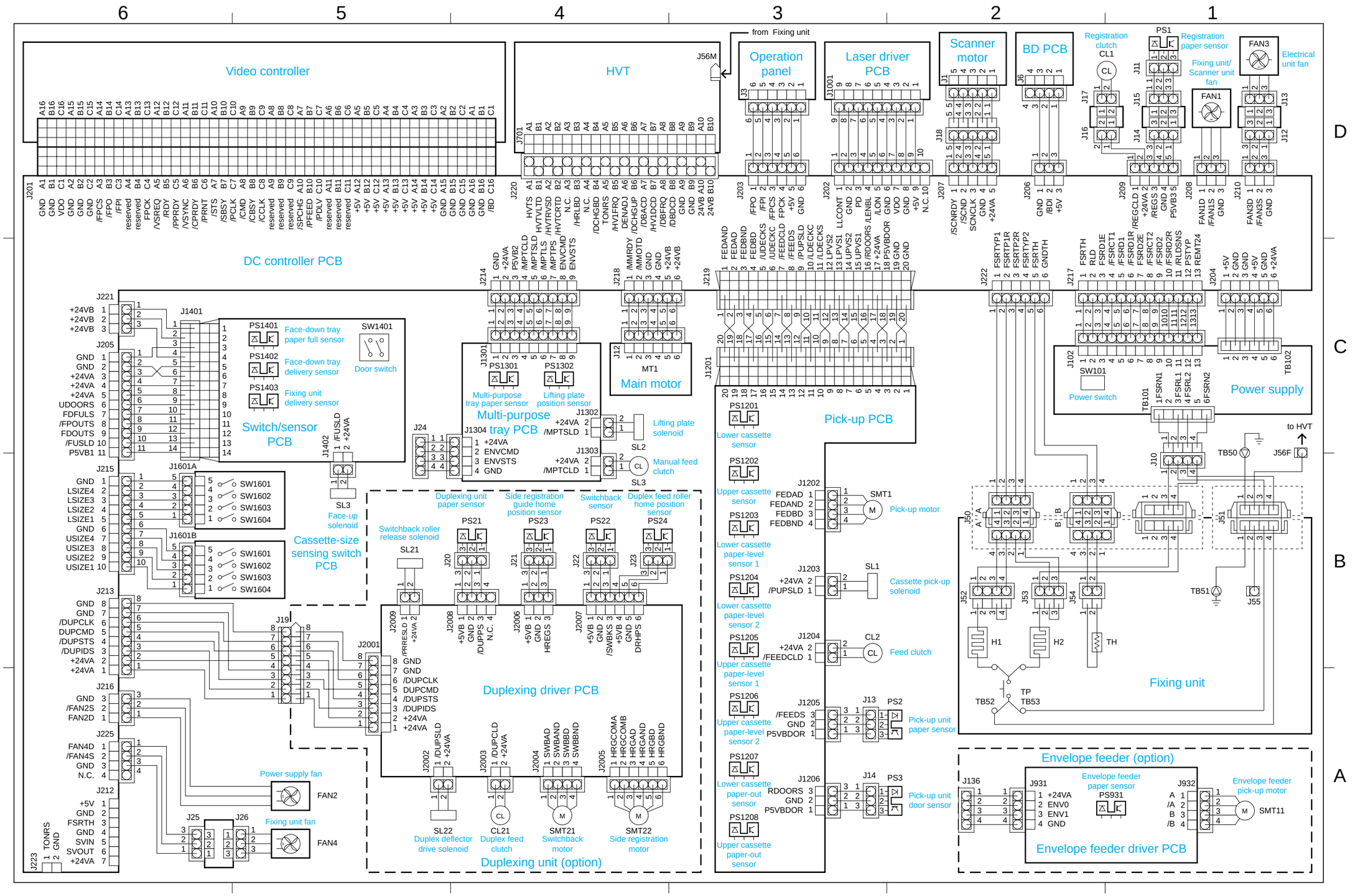
GENERAL TIMING CHART-2/2

• Timing chart for two consecutive prints on A4 paper (Duplexing feed)

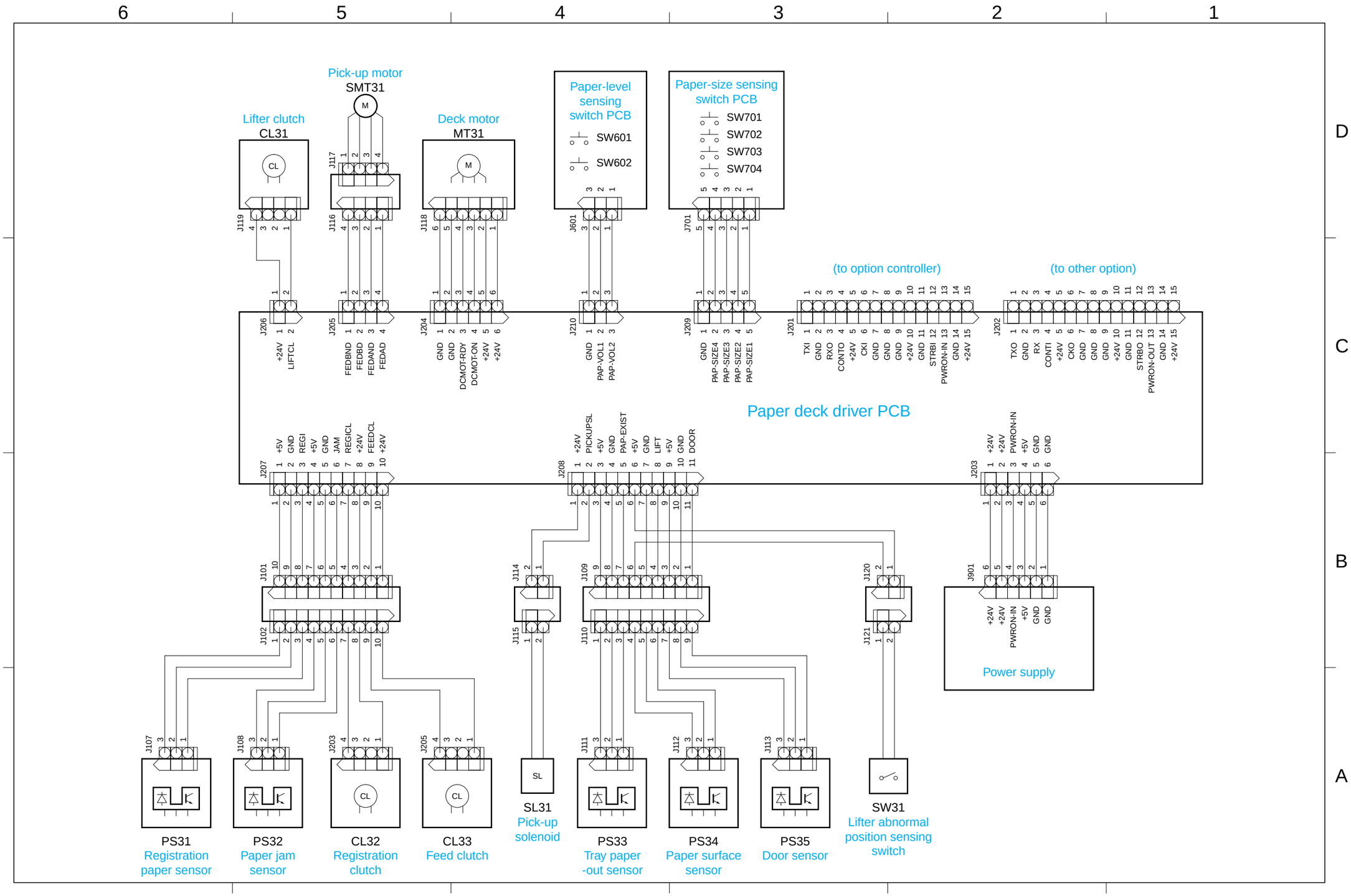
(Unit: Seconds)



II. GENERAL CIRCUIT DIAGRAM-1/3



GENERAL CIRCUIT DIAGRAM-2/3



6 5 4 3 2 1

D C B A

J1/2

A1	VCC	B1	GND
A2	LD1	B2	LD0
A3	LD3	B3	LD2
A4	LD5	B4	LD4
A5	LD7	B5	LD6
A6	LD9	B6	LD8
A7	LD11	B7	LD10
A8	LD13	B8	LD12
A9	LD15	B9	LD14
A10	GND	B10	GND
A11	LD17	B11	LD16
A12	LD19	B12	LD18
A13	LD21	B13	LD20
A14	LD23	B14	LD22
A15	LD25	B15	LD24
A16	LD27	B16	LD26
A17	LD29	B17	LD28
A18	LD31	B18	LD30
A19	ROMA0O	B19	ROMA0E
A20	GND	B20	VCC
A21	LA5	B21	LA4
A22	LA7	B22	LA6
A23	LA9	B23	LA8
A24	LA11	B24	LA10
A25	LA13	B25	LA12
A26	LA15	B26	LA14
A27	LA17	B27	LA16
A28	LA19	B28	LA18
A29	LA21	B29	LA20
A30	LA23	B30	LA22
A31	GND	B31	nSIMMWR
A32	nROMSEL0	B32	nROMSEL1
A33	nROMSEL2	B33	nROMSEL3
A34	nIOWR0	B34	nROMOEE
A35	nIOWR1	B35	nROMOEO
A36	VCC	B36	GND

Optional ROM DIMM

J3

1	GND	37	GND
2	MD0	38	GND
3	MD16	39	GND
4	MD1	40	nBCAS0
5	MD17	41	nBCAS2
6	MD2	42	nBCAS3
7	MD18	43	nBCAS1
8	MD3	44	nRAS0
9	MD19	45	nRAS1
10	VCC	46	N.C.
11	N.C.	47	nBWE
12	BMA0	48	N.C.
13	BMA1	49	MD8
14	BMA2	50	MD24
15	BMA3	51	MD9
16	BMA4	52	MD25
17	BMA5	53	MD10
18	BMA6	54	MD26
19	BMA10	55	MD11
20	MD4	56	MD27
21	MD20	57	MD12
22	MD5	58	MD28
23	MD21	59	VCC
24	MD6	60	MD29
25	MD22	61	MD13
26	MD7	62	MD30
27	MD23	63	MD14
28	BMA7	64	MD31
29	N.C.	65	MD15
30	VCC	66	N.C.
31	BMA8	67	N.C.
32	BMA9	68	N.C.
33	nRAS1	69	N.C.
34	nRAS0	70	N.C.
35	GND	71	N.C.
36	GND	72	GND

Optional RAM SIMM

J4

1	GND	37	GND
2	MD0	38	GND
3	MD16	39	GND
4	MD1	40	nBCAS0
5	MD17	41	nBCAS2
6	MD2	42	nBCAS3
7	MD18	43	nBCAS1
8	MD3	44	nRAS2
9	MD19	45	nRAS3
10	VCC	46	N.C.
11	N.C.	47	nBWE
12	BMA0	48	N.C.
13	BMA1	49	MD8
14	BMA2	50	MD24
15	BMA3	51	MD9
16	BMA4	52	MD25
17	BMA5	53	MD10
18	BMA6	54	MD26
19	BMA10	55	MD11
20	MD4	56	MD27
21	MD20	57	MD12
22	MD5	58	MD28
23	MD21	59	VCC
24	MD6	60	MD29
25	MD22	61	MD13
26	MD7	62	MD30
27	MD23	63	MD14
28	BMA7	64	MD31
29	N.C.	65	MD15
30	VCC	66	N.C.
31	BMA8	67	N.C.
32	BMA9	68	N.C.
33	nRAS3	69	N.C.
34	nRAS2	70	N.C.
35	GND	71	N.C.
36	GND	72	GND

Optional RAM SIMM

J5

1	GND	37	GND
2	MD0	38	GND
3	MD16	39	GND
4	MD1	40	nBCAS0
5	MD17	41	nBCAS2
6	MD2	42	nBCAS3
7	MD18	43	nBCAS1
8	MD3	44	nRAS4
9	MD19	45	nRAS5
10	VCC	46	N.C.
11	N.C.	47	nBWE
12	BMA0	48	N.C.
13	BMA1	49	MD8
14	BMA2	50	MD24
15	BMA3	51	MD9
16	BMA4	52	MD25
17	BMA5	53	MD10
18	BMA6	54	MD26
19	BMA10	55	MD11
20	MD4	56	MD27
21	MD20	57	MD12
22	MD5	58	MD28
23	MD21	59	VCC
24	MD6	60	MD29
25	MD22	61	MD13
26	MD7	62	MD30
27	MD23	63	MD14
28	BMA7	64	MD31
29	N.C.	65	MD15
30	VCC	66	N.C.
31	BMA8	67	N.C.
32	BMA9	68	N.C.
33	nRAS5	69	N.C.
34	nRAS4	70	N.C.
35	GND	71	N.C.
36	GND	72	GND

Optional RAM SIMM

Video controller PCB

J11

1	nRESET	23	WR1
2	GND	24	GND
3	D7	25	RO1
4	D8	26	GND
5	D6	27	N.C.
6	D9	28	N.C.
7	D5	29	N.C.
8	D10	30	GND
9	D4	31	nIDE_IRQ
10	D11	32	N.C.
11	D3	33	A3
12	D12	34	N.C.
13	D2	35	A2
14	D13	36	A4
15	D1	37	nIOCS40
16	D14	38	nIOCS41
17	D0	39	nHDLED
18	D15	40	GND
19	GND	41	VCC
20	N.C.	42	VCC
21	N.C.	43	GND
22	GND	44	N.C.

Hard disk (option)

J7

1	GND		
2	GND		
3	/TX		
4	/CLK		
5	/CLKN		
6	/RX		
7	N.C.		
8	/STROBE		
9	N.C.		
10	N.C.		
11	/PDLV		
12	GND		
13	/SPCHG		
14	/PFED		
15	/PRINT		
16	/VSYNC		
17	RESET		
18	N.C.		
19	VCC		
20	VCC		

Option controll interface board

J9/10

1	VCC	26	GND
2	/INTR	27	/WAIT
3	/RESET	28	nW/R
4	/IOWR	29	/IORD
5	/IOCS	30	A23
6	N.C.	31	N.C.
7	GND	32	GND
8	D0	33	D1
9	D2	34	D3
10	D4	35	D5
11	D6	36	D7
12	D8	37	D9
13	D10	38	D11
14	D12	39	D13
15	D14	40	D15
16	GND	41	GND
17	A2	42	A3
18	A4	43	A5
19	A6	44	A7
20	A8	45	A9
21	A10	46	A11
22	A12	47	A13
23	A14	48	A15
24	A16	49	A17
25	VCC	50	GND

Expansion interface board

J8

1	STROBE	19	GND
2	D0	20	GND
3	D1	21	GND
4	D2	22	GND
5	D3	23	GND
6	D4	24	GND
7	D5	25	GND
8	D6	26	GND
9	D7	27	GND
10	ACK	28	GND
11	BUSY	29	GND
12	PERROR	30	GND
13	SELECT	31	INIT
14	AUTFEED	32	FAULT
15	N.C.	33	N.C.
16	GND	34	N.C.
17	GND	35	N.C.
18	VCC	36	SELIN

To host computer

J6

A-1	GND	B-1	GND	C-1	/BD
A-2	GND	B-2	GND	C-2	GND
A-3	VCC	B-3	VCC	C-3	VCC
A-4	VCC	B-4	VCC	C-4	VCC
A-5	VCC	B-5	VCC	C-5	VCC
A-6	N.C.	B-6	N.C.	C-6	N.C.
A-7	/SPCHG	B-7	/PFED	C-7	/PDLV
A-8	N.C.	B-8	N.C.	C-8	N.C.
A-9	/CMD	B-9	/CBSY	C-9	/CCLK
A-10	/STS	B-10	/SBSY	C-10	/PCLK
A-11	/VSYNC	B-11	/CPRDY	C-11	/PRNT
A-12	/VSREQ	B-12	/RDY	C-12	/PPRDY
A-13	N.C.	B-13	N.C.	C-13	/FPCK
A-14	/FPCS	B-14	/FPO	C-14	/FPI
A-15	GND	B-15	GND	C-15	GND
A-16	GND	B-16	GND	C-16	VDO

J201

DC controller PCB

III. LIST OF SIGNALS

A. Input/output signals to DC controller PCB

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J201	A1	GND			
	A2	GND			
	A3	/FPCS	I	L	FRONT PANEL CONTROLLER CHIP SELECT signal
	A4	Reservrd			
	A5	/VSREQ	O	L	VSYNC REQUEST signal
	A6	/VSYNC	I	L	VERTICAL SYNC signal
	A7	/STS	O	L	STATUS signal
	A8	/CMD	I	L	COMMAND signal
	A9	Reserved			
	A10	/SPCHG	O	L	SPEED CHANGE signal
	A11	Reserved			
	A12	+5V	O		
	A13	+5V	O		
	A14	+5V	O		
	A15	GND			
	A16	GND			
	B1	GND			
	B2	GND			
	B3	/FPO	I	L	FRONT PANEL SERIAL OUTPUT signal
	B4	Reserved			
	B5	/RDY	O	L	READY signal
	B6	/CPRDY	I	L	CONTROLLER POWER READY signal
	B7	/SBSY	O	L	STATUS BUSY signal
	B8	/CBSY	I	L	COMMAND BUSY signal
	B9	Reserved			
	B10	/PFEED	O	L	PAPER FEED signal
	B11	Reserved			
	B12	+5V	O		
	B13	+5V	O		
	B14	+5V	O		
	B15	GND			
	B16	GND			
	C1	VDO	I	H	VIDEO signal
	C2	GND			
	C3	/FPI	O	L	FRONT PANEL SERIAL INPUT signal
	C4	FPCK	I	H	FRONT PANEL SERIAL CLOCK signal
	C5	/PPRDY	I	L	PRINTER POWER READY signal
	C6	/PRNT	I	L	PRINT signal
	C7	/PCLK	O	L	PRINTER CLOCK signal
	C8	/CCLK	I	L	CONTROLLER CLOCK signal
	C9	Reserved			
	C10	/PDLV	O	L	PAPER DELIVERY signal
	C11	Reserved			
	C12	+5V	O		
	C13	+5V	O		

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J201	C14	+5V	O		
	C15	GND			
	C16	/BD	O	L	BEAM DETECTION signal
J202	1	LLCONT	O		LASER OUTPUT signal
	2	GND			
	3	PD	I		PHOTO DETECTION signal
	4	/LENBL	O	L	VIDEO DATA ENABLE signal
	5	/LON	O	L	FORCED LASER ON signal
	6	GND			
	7	VDO	O	H	VIDEO signal
	8	GND			
	9	+5V	O		
	10	N.C.			
J203	1	/FPO	O	L	FRONT PANEL SERIAL OUTPUT signal
	2	/FPI	I	L	FRONT PANEL SERIAL INPUT signal
	3	/FPCS	O	L	FRONT PANEL CONTROLLER CHIP SELECT signal
	4	FPCK	O		FRONT PANEL SERIAL CLOCK signal
	5	+5V	O		
	6	GND			
J204	1	+5V	I		
	2	GND			
	3	GND			
	4	+5V	I		
	5	GND			
	6	+24VA	I		
J205	1	GND			
	2	GND			
	3	+24VA	O		
	4	+24VA	O		
	5	+24VA	O		
	6	UDOORS	I	H	UPPER DOOR OPEN SENSE signal
	7	FDFULS	I	H	FACE-DOWN TRAY PAPER FULL SENSE signal
	8	/FPOUTS	I	L	FIXING UNIT DELIVERY SENSE signal
	9	FDOUTS	I	H	FACE-DOWN TRAY DELIVERY SENSE signal
	10	/FUSLD	O	L	FACE-UP SOLENOID DRIVE signal
	11	P5VB1	O		
J206	1	GND			
	2	/BDI	I	L	BEAM DETECTION INPUT signal
	3	+5V	O		
J207	1	/SCNRDY	I	L	SCANNER MOTOR READY signal
	2	/SCND	O	L	SCANNER MOTOR DRIVE signal
	3	SCNCLK	O	H	SCANNER MOTOR CONTOL CLOCK signal
	4	GND			
	5	+24VA	O		
J208	1	FAN1D	O	H	FAN MOTOR 1 DRIVE signal
	2	/FAN1S	I	L	FAN MOTOR 1 ROTATING DETECTION signal
	3	GND			
J209	1	/REGCLD	O	L	REGISTRATION CLUTCH DRIVE signal
	2	+24VA	O		

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J209	3	/REGS	I	L	REGISTRATION PAPER SENSE signal
	4	GND			
	5	P5VB3	O		
J210	1	FAN3D	O	H	FAN MOTOR 3 DRIVE signal
	2	/FAN3S	I	L	FAN MOTOR 3 ROTATING DETECTION signal
	3	GND			
J212	1	+5V	O		
	2	GND			
	3	FSRTH	I		FIXING ROLLER TEMPERATURE SENSE signal
	4	GND			
	5	SVIN	I		SERVICE STATUS signal
	6	SVOUT	O		SERVICE COMMAND signal
	7	+24VA	O		
J213	1	+24VA	O		
	2	+24VA	O		
	3	/DUPIDS	I	L	DUPLEXING UNIT SENSE signal
	4	/DUPSTS	I	L	DUPLEXING UNIT STATUS signal
	5	DUPCMD	O	H	DUPLEXING UNIT COMMAND signal
	6	/DUPCLK	O	L	SERIAL CLOCK
	7	GND			
	8	GND			
J214	1	GND			
	2	+24VA	O		
	3	P5VB2	O		
	4	/MPTCLD	O	L	MANUAL FEED CLUTCH DRIVE signal
	5	/MPTSLD	O	L	LIFTING PLATE SOLENOID DRIVE signal
	6	/MPTLS	I	L	LIFTING PLATE SENSE signal
	7	/MPTPS	I	L	MULTI-PURPOSE TRAY PAPER SENSE signal
	8	ENVCMD	O		ENVELOPE FEEDER COMMAND signal
	9	ENVSTS	I		ENVELOPE FEEDER STATUS signal
J215	1	GND			
	2	LSIZE4	I	L	LOWER CASSETTE PAPER SIZE SENSE signal
	3	LSIZE3	I	L	LOWER CASSETTE PAPER SIZE SENSE signal
	4	LSIZE2	I	L	LOWER CASSETTE PAPER SIZE SENSE signal
	5	LSIZE1	I	L	LOWER CASSETTE PAPER SIZE SENSE signal
	6	GND			
	7	USIZE4	I	L	UPPER CASSETTE PAPER SIZE SENSE signal
	8	USIZE3	I	L	UPPER CASSETTE PAPER SIZE SENSE signal
	9	USIZE2	I	L	UPPER CASSETTE PAPER SIZE SENSE signal
	10	USIZE1	I	L	UPPER CASSETTE PAPER SIZE SENSE signal
J216	1	FAN2D	O	H	FAN MOTOR 2 DRIVE signal
	2	/FAN2S	I	L	FAN MOTOR 2 ROTATING DETECTION signal
	3	GND			
J217	1	FSRTH	I		FIXING ROLLER TEMPERATURE SENSE signal
	2	RLD	O	H	RELAY DRIVE signal
	3	FSRD1E	O		FIXING MAIN HEATER DRIVE signal
	4	/FSRCT1	I	L	FIXING MAIN HEATER TYPE SENSE signal
	5	/FSRD1	O	L	FIXING MAIN HEATER DRIVE ENABLE signal
	6	/FSRD1R	O	L	FIXING MAIN HEATER DRIVE ENABLE signal (200V model only)

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J217	7	FSRD2E	O		FIXING SUB HEATER DRIVE signal
	8	/FSRCT2	I	L	FIXING SUB HEATER TYPE SENSE signal
	9	/FSRD2	O	L	FIXING SUB HEATER DRIVE ENABLE signal
	10	/FSRD2R	O	L	FIXING SUB HEATER DRIVE ENABLE signal (200V model only)
	11	/RLDSNS	I	L	RELAY DETECTION SENSE signal
	12	PSTYP	I		POWER SUPPLY TYPE SENSE signal
	13	/REMT24	O	L	24V DRIVE signal
J218	1	/MMRDY	I	L	MAIN MOTOR READY signal
	2	/MMOTD	O	L	MAIN MOTOR DRIVE signal
	3	GND			
	4	GND			
	5	+24VB	O		
	6	+24VB	O		
J219	1	FEDAND	O		PICK-UP MOTOR CONTROL signal
	2	FEDAD	O		PICK-UP MOTOR CONTROL signal
	3	FEDBND	O		PICK-UP MOTOR CONTROL signal
	4	FEDBD	O		PICK-UP MOTOR CONTROL signal
	5	/UDECKS	I	L	UPPER CASSETTE PAPER-OUT SENSE signal
	6	/UDECKC	I	L	UPPER CASSETTE SENSE signal
	7	/FEEDCLD	O	L	FEED CLUTCH DRIVE signal
	8	/FEEDS	I	L	PICK-UP UNIT PAPER SENSE signal
	9	/PUPSLD	O	L	CASSETTE PICK-UP SOLENOID DRIVE signal
	10	/LDECKC	I	L	LOWER CASSETTE PAPER-OUT SENSE signal
	11	/LDECKS	I	L	LOWER CASSETTE SENSE signal
	12	LPVS2	I		LOWER CASSETTE PAPER-LEVEL SENSE signal 2
	13	LPVS1	I		LOWER CASSETTE PAPER-LEVEL SENSE signal 1
	14	UPVS2	I		UPPER CASSETTE PAPER-LEVEL SENSE signal 2
	15	UPVS1	I		UPPER CASSETTE PAPER-LEVEL SENSE signal 1
	16	/RDOORS	I	L	RIGHT DOOR OPEN SENSE signal
	17	+24VA	O		
	18	P5VBDOR	O		
	19	GND			
	20	GND			
J220	A1	HVTS	I		TRANSFER BIAS MONITOR signal
	A2	/HVTRVSD	O	L	TRANSFER NEGATIVE BIAS DRIVE signal
	A3	N.C.			
	A4	N.C.			
	A5	TONRS	I		TONER LEVEL signal
	A6	DENADJ	O		IMAGE DENSITY ADJUSTMENT signal
	A7	/DBACD	O	L	DEVELOPING AC BIAS DRIVE signal
	A8	/DBFRQ	O	L	DEVELOPING BIAS FREQUENCY OUTPUT signal
	A9	GND			
	A10	+24VB	O		
	B1	HVTVLTD	O		TRANSFER BIAS DRIVE signal
	B2	/HVTCRTD	O	L	TRANSFER BIAS CONSTANT CURRENT DRIVE signal
	B3	/HRLBD	O	L	FIXING ROLLER BIAS DRIVE signal
	B4	/DCHGBD	O	L	DISCHARGE BIAS DRIVE signal
	B5	/HV1FRQ	O	L	PRIMARY BIAS FREQUENCY OUTPUT signal
	B6	/DCHGUP	O	L	DISCHARGE BIAS SWITCH signal

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J220	B7	/HV1DCD	O	L	PRIMARY DC BIAS DRIVE signal
	B8	/DBDCD	O	L	DEVELOPING DC BIAS DRIVE signal
	B9	GND			
	B10	+24VB	O		
J221	1	+24VB	I		
	2	+24VB	I		
	3	+24VB	I		
J222	1	FSRTYP1	I		FIXING MAIN HEATER TYPE SENSE signal
	2	FSRTP1R			
	3	FSRTP2R			
	4	FSRTYP2	I		FIXING SUB HEATER TYPE SENSE signal
	5	FSRTH	I		FIXING ROLLER TEMPERATURE SENSE signal
	6	GND			
J223	1	TONRS	I		TONER LEVEL signal
	2	GND			
J225	1	FAN4D	O	H	FAN MOTOR 4 DRIVE signal
	2	/FAN4S	I	L	FAN MOTOR 4 ROTATING DETECTION signal
	3	GND			
	4	N.C.			

B. Input/output signals to option controller PCB

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J101	A1	+5V			
	A2	RESET	I		RESET signal (unused)
	A3	/PRINT	I	L	PRINT signal (unused)
	A4	/SPCHG	I	L	SPEED CHANGE signal (unused)
	A5	/PDLV	I	L	PAPER DELIVERY signal
	A6	/undetermined 1	I		For expansion
	A7	N.C.			
	A8	/CKEN	I	L	COMMUNICATION READY signal
	A9	/TX	I	L	SERIAL IN signal
	A10	GND			
	B1	+5V			
	B2	N.C.			
	B3	/VSYNC	I	L	VERTICAL SYNC signal
	B4	/PFED	I	L	PAPER FEED signal
	B5	GND			
	B6	/undetermined 2	I	L	For expansion
	B7	/STROBE		L	STROBE signal
	B8	/RX	O	L	SERIAL OUT signal
	B9	/CLK	O	L	SYNCHRONIZED CLOCK signal
	B10	GND			
J102	1	/TX	O	L	SERIAL OUT signal
	2	GND			
	3	/RX	I	L	SERIAL IN signal
	4	/TERMINATE	I	L	COMMUNICATION READY signal
	5	N.C.			
	6	/CLOCK	I	L	SYNCHRONIZED CLOCK signal
	7	GND			
	8	GND			
	9	GND (KEY)			Mis-insertion prevention
	10	N.C.			
	11	GND			
	12	/STROBE	O	L	STROBE signal
	13	PWRON	O	L	POWER ON signal
	14	GND			
	15	N.C.			

C. Input/output signals to paper deck driver PCB

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J201	1	TXI	I	L	SERIAL IN signal
	2	GND			
	3	RXO	O	L	SERIAL OUT signal
	4	CONTO	O	L	Communication ready signal
	5	+24V			
	6	CKI	I	L	SYNCHRONOUS CLOCK signal
	7	GND			
	8	GND			
	9	GND			
	10	+24V			
	11	GND			
	12	STRBI	I	L	STROBE signal
	13	PWRON-IN	I	L	POWER ON signal
	14	GND			
	15	+24V			
J202	1	TXO	O	L	SERIAL OUT signal
	2	GND			
	3	RXI	I	L	SERIAL IN signal
	4	CONTI	I	L	Communication ready signal
	5	+24V			
	6	CKO	I	L	SYNCHRONOUS CLOCK signal
	7	GND			
	8	GND			
	9	GND			
	10	+24V			
	11	GND			
	12	STRBO	O	L	STROBE signal
	13	PWRON-OUT	O	L	POWER ON signal
	14	GND			
	15	+24V			
J203	1	+24V	I		
	2	+24V	I		
	3	PWRON-IN	O	L	POWER ON signal
	4	+5V	I		
	5	GND			
	6	GND			
J204	1	GND			
	2	GND			
	3	DCMOT-RDY	I	L	DECK MOTOR READY signal
	4	DCMOT-ON	O	L	DECK MOTOR DRIVE signal
	5	+24V	O		
	6	+24V	O		
J205	1	FEDBND	O		PICK-UP MOTOR CONTROL signal
	2	FEDBD	O		PICK-UP MOTOR CONTROL signal
	3	FEDAND	O		PICK-UP MOTOR CONTROL signal
	4	FEDAD	O		PICK-UP MOTOR CONTROL signal
J206	1	+24V	O		

Connector	Pin	Abbreviation	I/O	Logic	Signal name
	2	LIFTCL	O	L	LIFTER CLUTCH DRIVE signal
J207	1	+5V	O		
	2	GND			
	3	REGI	I	L	REGISTRATION PAPER SENSE signal
	4	+5V	O		
	5	GND			
	6	JAM	I	L	PAPER JAM SENSE signal
	7	REGICL	O		REGISTRATION CLUTCH DRIVE signal
	8	+24V	O		
	9	FEEDCL	O	L	FEED CLUTCH DRIVE signal
	10	+24V	O		
J208	1	+24V	O		
	2	PICKUPSL	O	L	PICK-UP SOLENOID DRIVE signal
	3	+5V	O		
	4	GND			
	5	PAP-EXIST	I	L	TRAY PAPER-OUT SENSE signal
	6	+5V	O		
	7	GND			
	8	LIFT	I	H	PAPER SURFACE SENSE signal
	9	+5V	O		
	10	GND			
	11	DOOR	I	L	DOOR OPEN SENSE signal
J209	1	GND			
	2	PAP-SIZE4	I	L	PAPER SIZE SENSE signal 4
	3	PAP-SIZE3	I	L	PAPER SIZE SENSE signal 3
	4	PAP-SIZE2	I	L	PAPER SIZE SENSE signal 2
	5	PAP-SIZE1	I	L	PAPER SIZE SENSE signal 1
J210	1	GND			
	2	PAP-VOL1	I		PAPER-LEVEL SENSE signal 1
	3	PAP-VOL2	I		PAPER-LEVEL SENSE signal 2

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SERVICE INFORMATION

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LBP-2460

NO. : RAD-12E-0003
DATE: December 12, 1997

LOCATION

SUBJECT

Revision of the Circuit Diagram for LBP-2460

Because of the many changes and corrections, the LBP-2460 Circuit Diagram has been completely revised

Please discard the old Circuit Diagram.

RY8-8123-01Y

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REVISION PAGE LIST

R : Replacement,
S : Supplement,
D : Destroyed,

Model : LBP-2460

FIG-URE	PAGE	REVISION								FIG-URE	PAGE	REVISION							
		Apr. 1997	Dec. 1997									Apr. 1997	Dec. 1997						
	i	0	1R							CD4	1	0	→						
	ii	0	→								2	0	→						
	iii	0	→								3	0	→						
CD1	1	0	→							CD5	1	0	→						
	2	0	→								2	0	→						
	3	0	→								3	0	→						
CD2	1	0	→							CD6	1	0	→						
	2	0	→								2	0	→						
	3	0	1R								3	0	→						
	4	0	1R								4	0	1R						
	5	0	1R								5	0	→						
	6	0	1R								6	0	→						
	7	0	→								7	0	1R						
	8	0	1R								8	0	→						
	9	0	→								9	0	→						
	10	0	1R								10	0	1R						
	11	0	1R								11	0	→						
	12	0	1R								12	0	1R						
	13	0	1R								13	0	1R						
	14	0	1R								14	0	1R						
	15	0	1R								15	0	1R						
	16	0	1R								16	0	1R						
	17	0	1R																
	18	0	1R							CD6A	1	0	→						
	19	0	1R								2	0	→						
											3	0	→						
CD3	1	0	→								4	0	1R						
	2	0	→								5	0	→						
	3	0	→								6	0	→						

REVISION PAGE LIST

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FIG-URE	PAGE	REVISION								FIG-URE	PAGE	REVISION							
		Apr. 1997	Dec. 1997									Apr. 1997	Dec. 1997						
CD6A	7	0	1R							CDR1	3	0	→						
	8	0	→								4	0	→						
	9	0	→								5	0	→						
	10	0	1R								6	0	→						
	11	0	→								7	0	→						
	12	0	1R								8	0	→						
	13	0	1R																
	14	0	1R							CDR2	1	0	→						
	15	0	1R								2	0	→						
	16	0	1R								3	0	→						
CDD	i	0	→							CDR3	1	0	→						
											2	0	→						
CDD1	1	0	→								3	0	→						
	2	0	→																
	3	0	→							CDV	i	0	→						
	4	0	→																
	5	0	→							CDV1	1	0	→						
	6	0	→								2	0	→						
											3	0	→						
CDF	i	0	→								4	0	1R						
											5	0	→						
CDF1	1	0	→								6	0	→						
	2	0	→																
	3	0	→							A	1	0	1R						
	4	0	→								2	0	1R						
											3	0	1R						
CDR	i	0	→								4	0	1R						
											5	0	1R						
CDR1	1	0	→								6	0	1R						
	2	0	→																

REVISION PAGE LIST

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Model : LBP-2460

FIG-URE	PAGE	REVISION								FIG-URE	PAGE	REVISION							
		Apr. 1997	Dec. 1997																
B	1	0	1R																
	2	0	1R																

LBP-2460

CIRCUIT DIAGRAM

REVISION 1

Canon

DEC. 1997

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CANON LBP-2460 REV.1 DEC. 1997 PRINTED IN JAPAN [IMPRIME AU JAPON]

PREFACE

These circuit diagrams for the LBP-2460, the duplex unit, the envelope feeder, the paper deck, and the option controller are provided to aid service technicians when ordering PCB parts.
When major changes are made to the products, a revised version of the circuit diagrams will be produced. However in other cases, information will be communicated when necessary by service information.

Canon Inc.

Peripheral Products Quality Advancement Div.
Peripheral Products Technical Documentation Dept
5-1, Hakusan 7-chome, Toride-shi, Ibaraki 302, Japan

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Use of this manual should be strictly supervised to avoid disclosure of confidential information.

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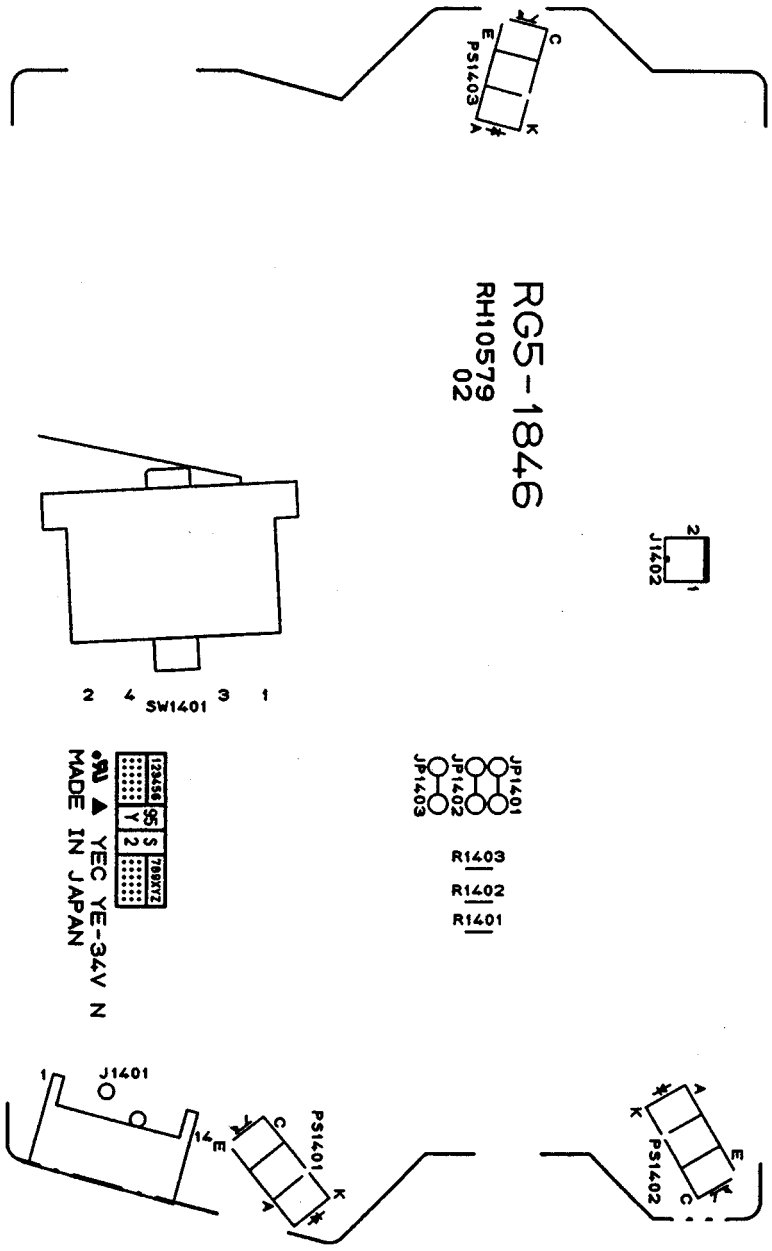
FIGURE CD 1 SWITCH/SENSOR PCB ASS'Y



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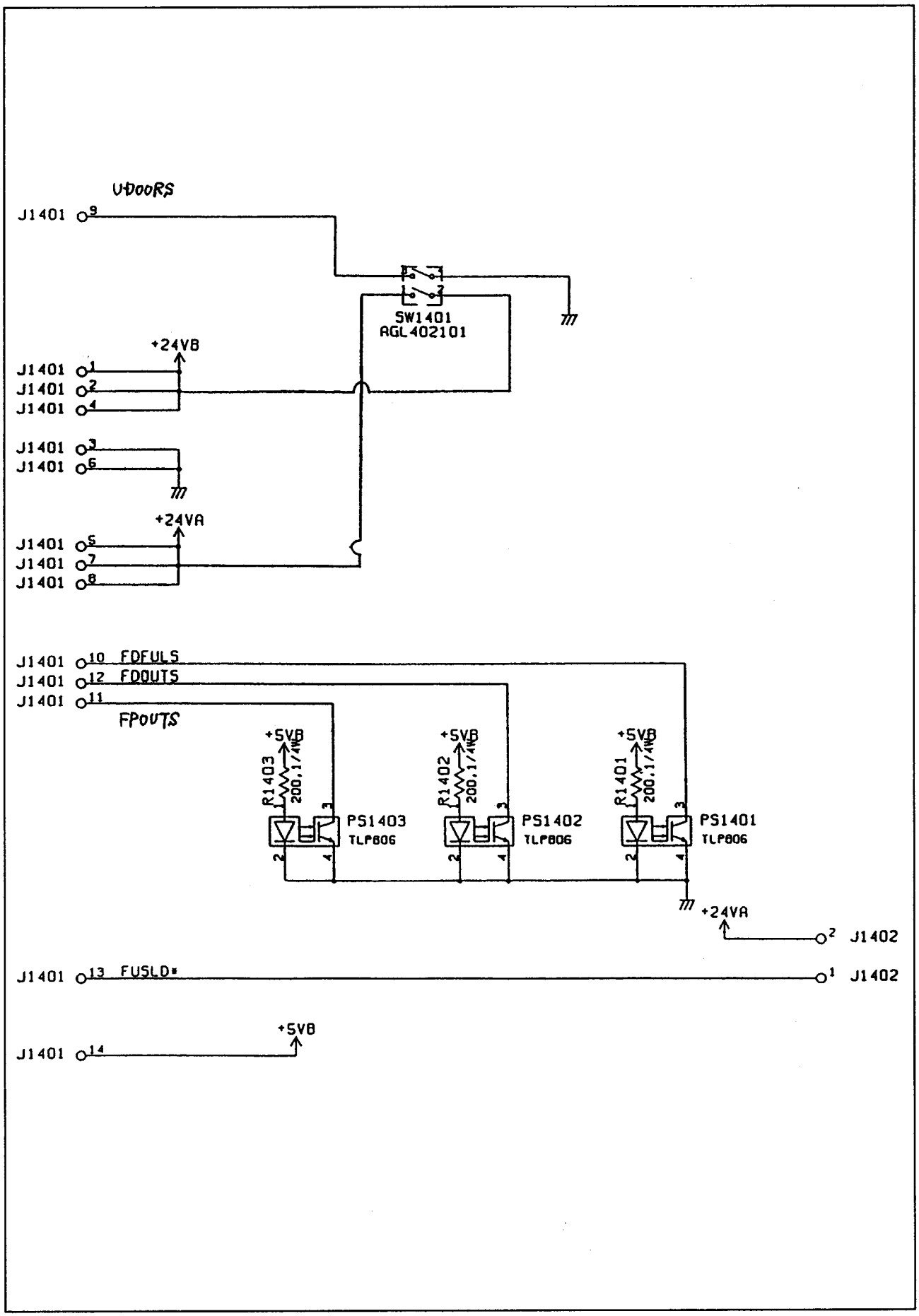

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 1-	RG5-1846-000		1	SWITCH/SENSOR PCB ASS'Y	
J1401	VS3-5013-014		1	CONNECTOR, 14P	
J1402	VS1-5517-002		1	CONNECTOR, 2P	
PS1401	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS1402	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS1403	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
R1401	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1402	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1403	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
SW1401	WC8-5060-000		1	SAFETY SWITCH	

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FIGURE CD 2 DC CONTROLLER PCB ASS'Y (1/2)

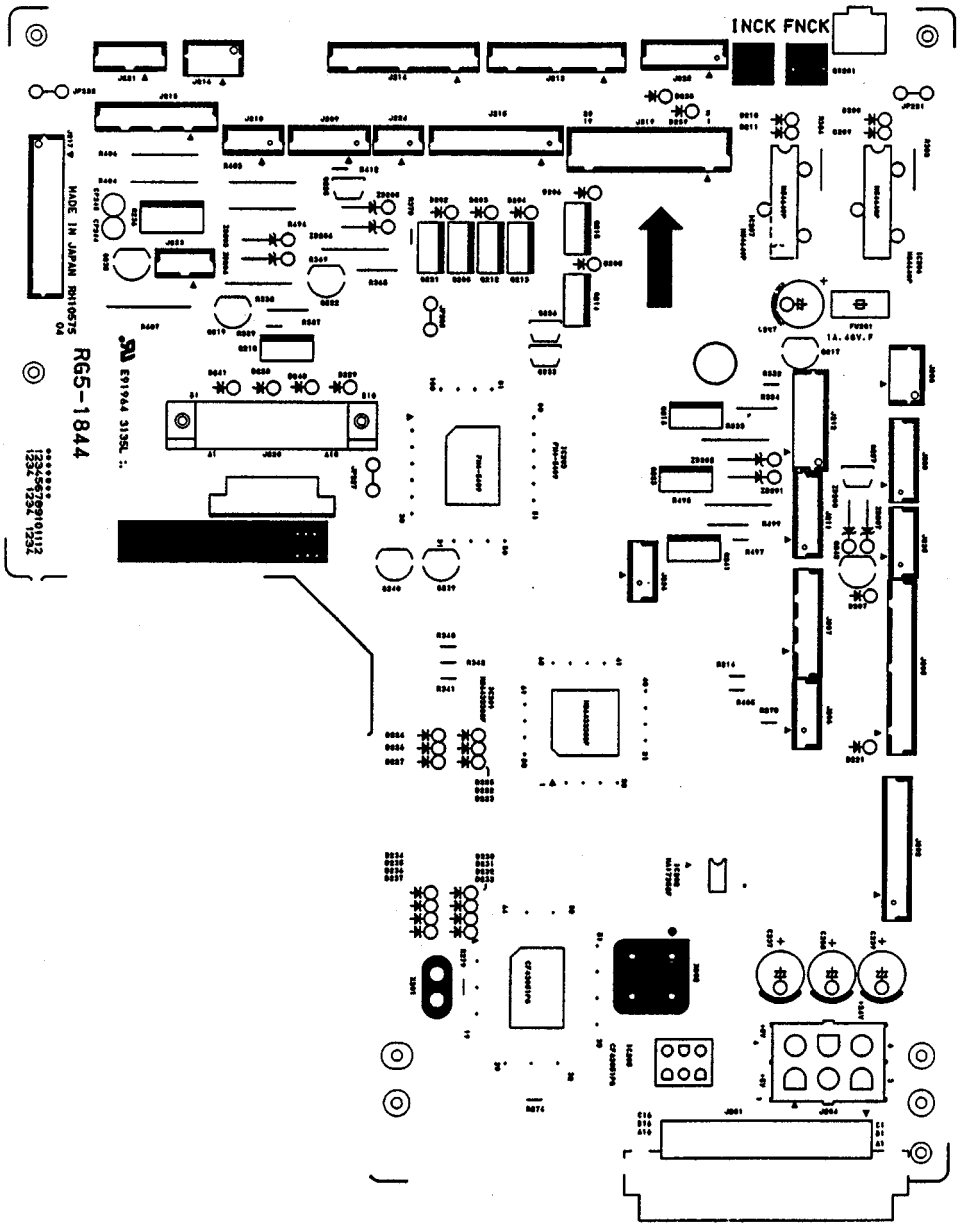

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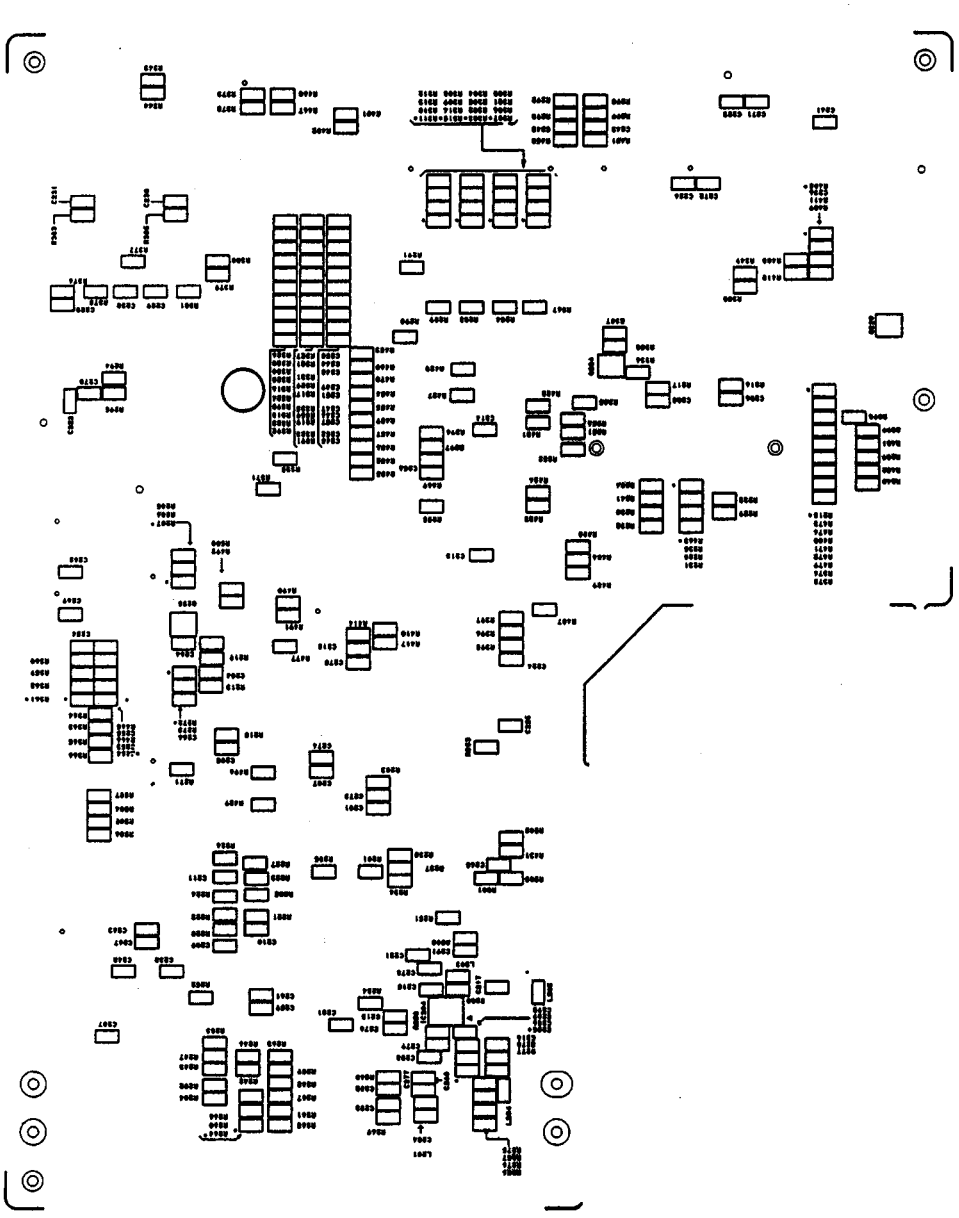
FIGURE CD 2 DC CONTROLLER PCB ASS'Y (2/2)



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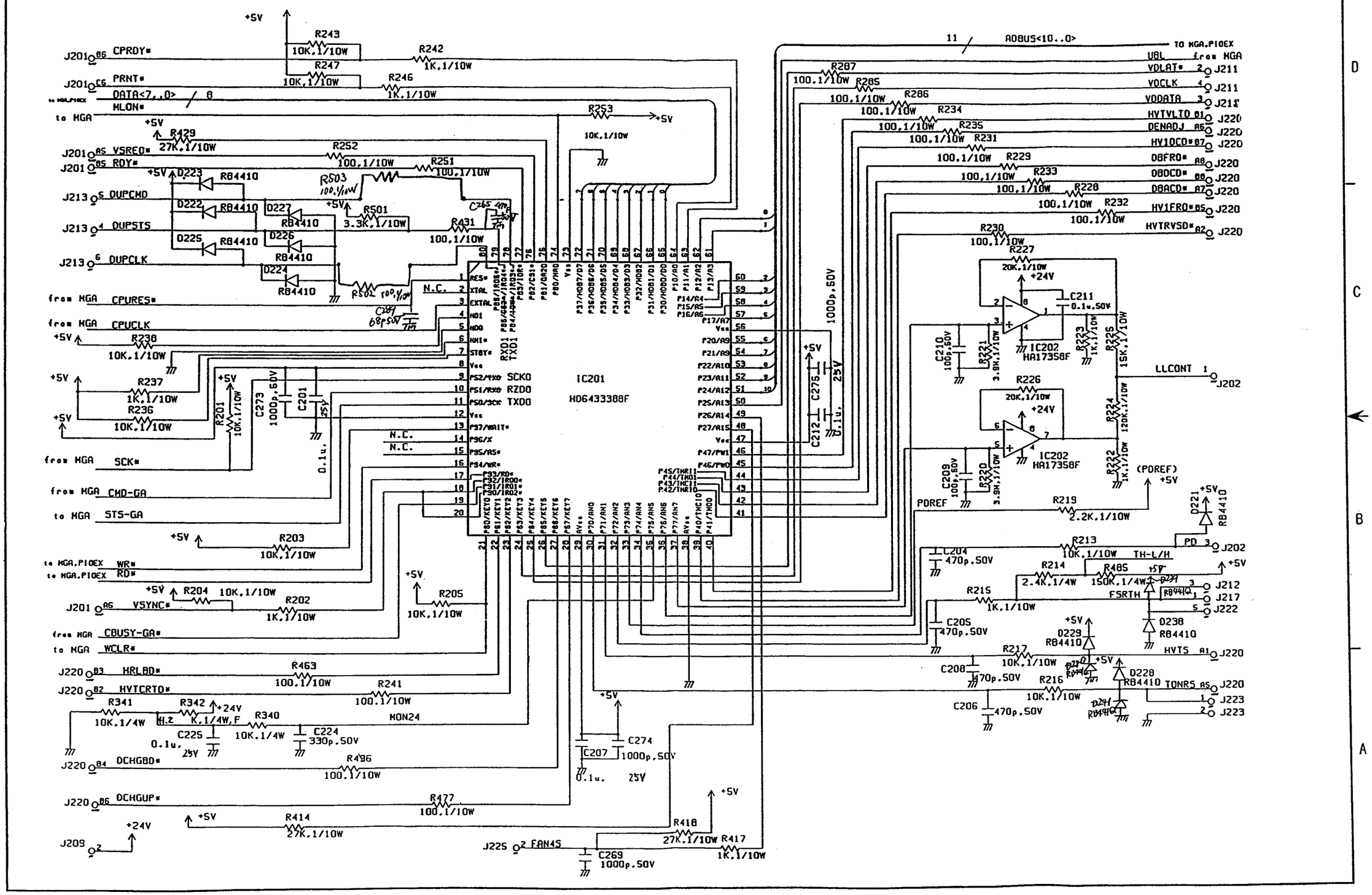

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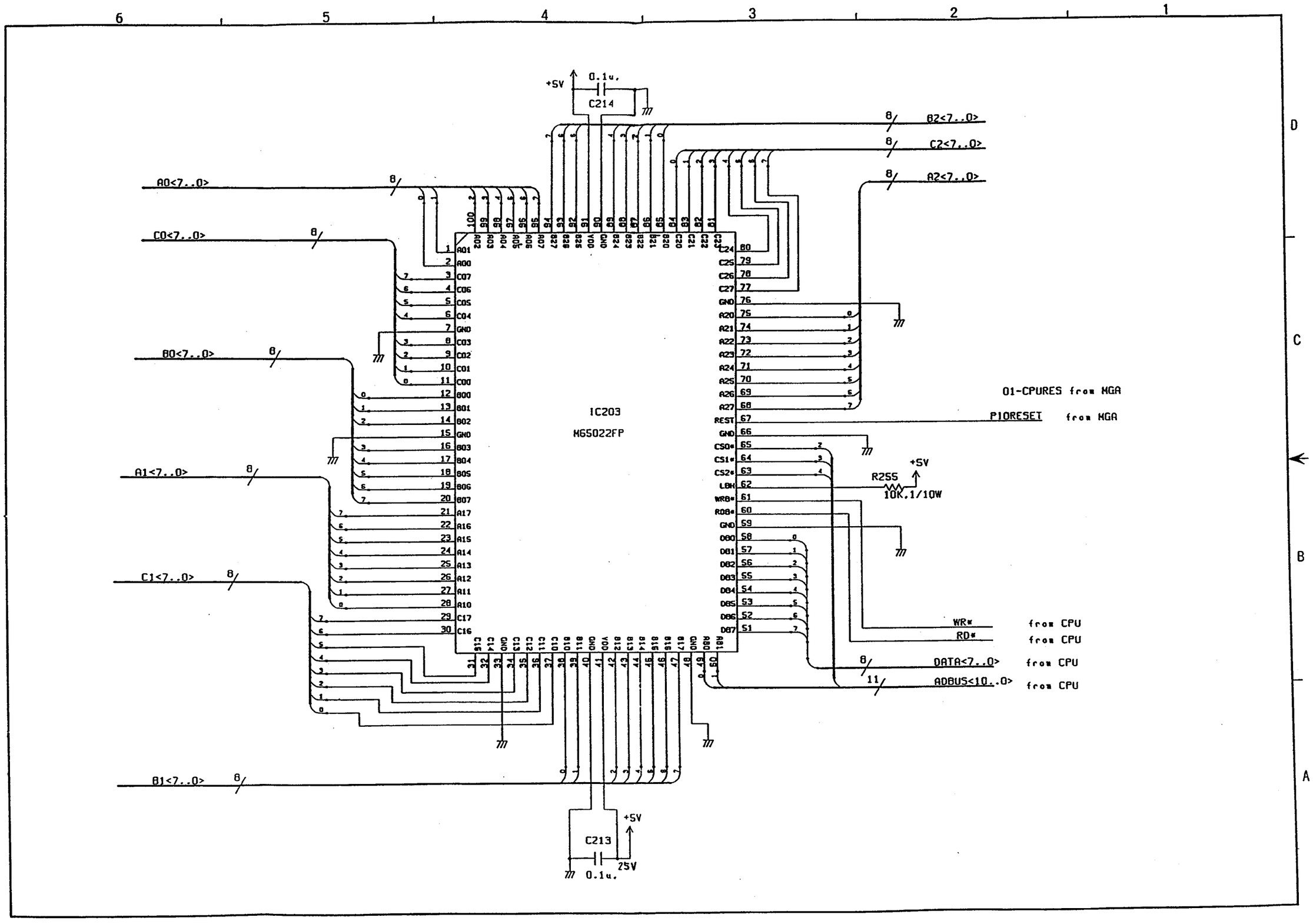

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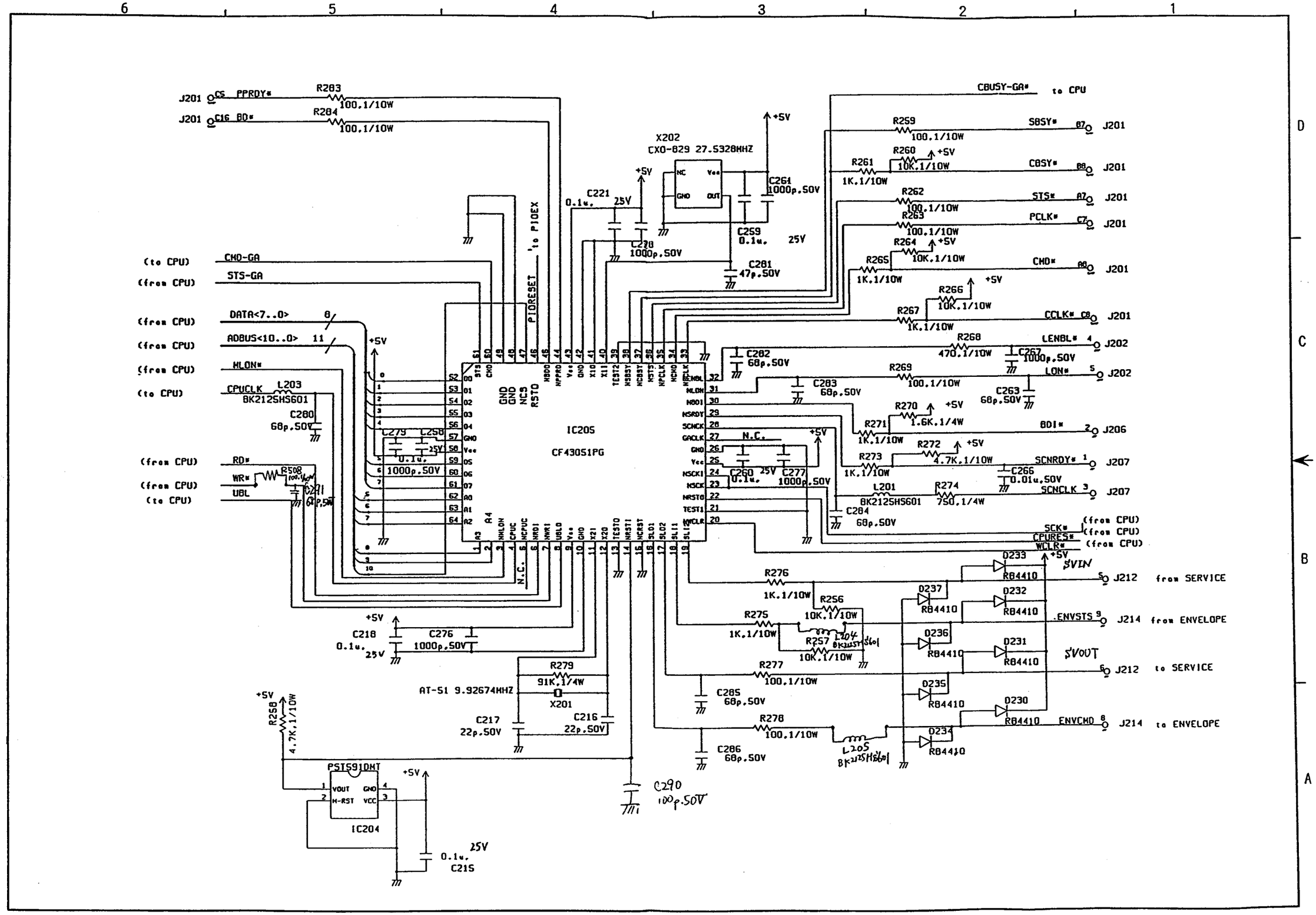

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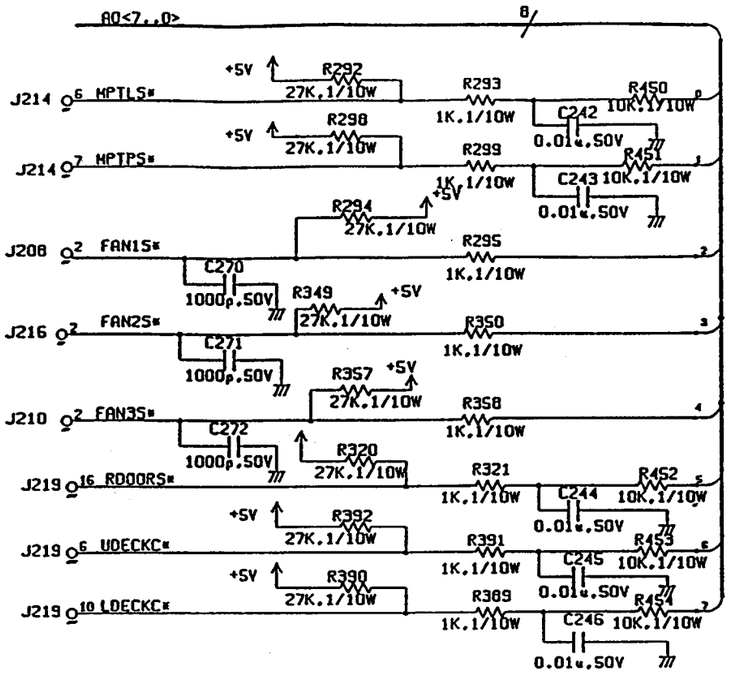

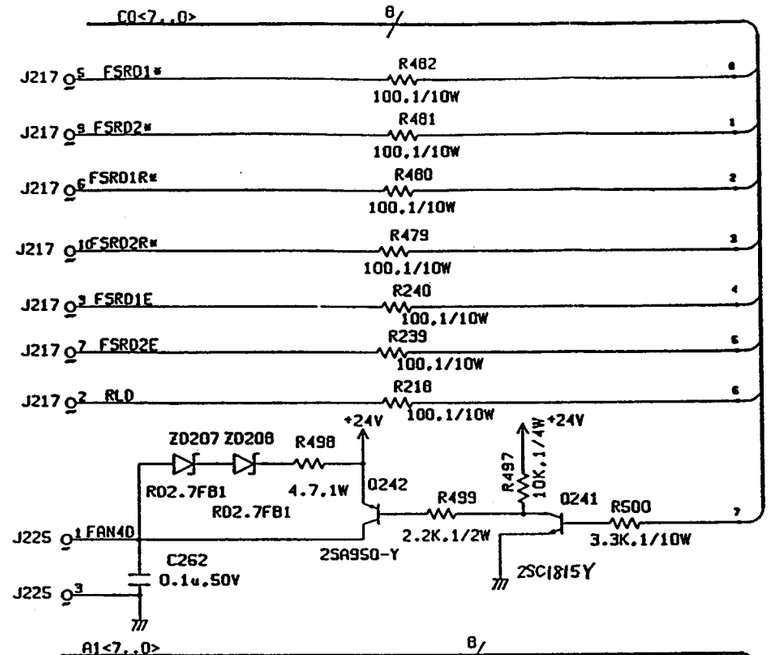

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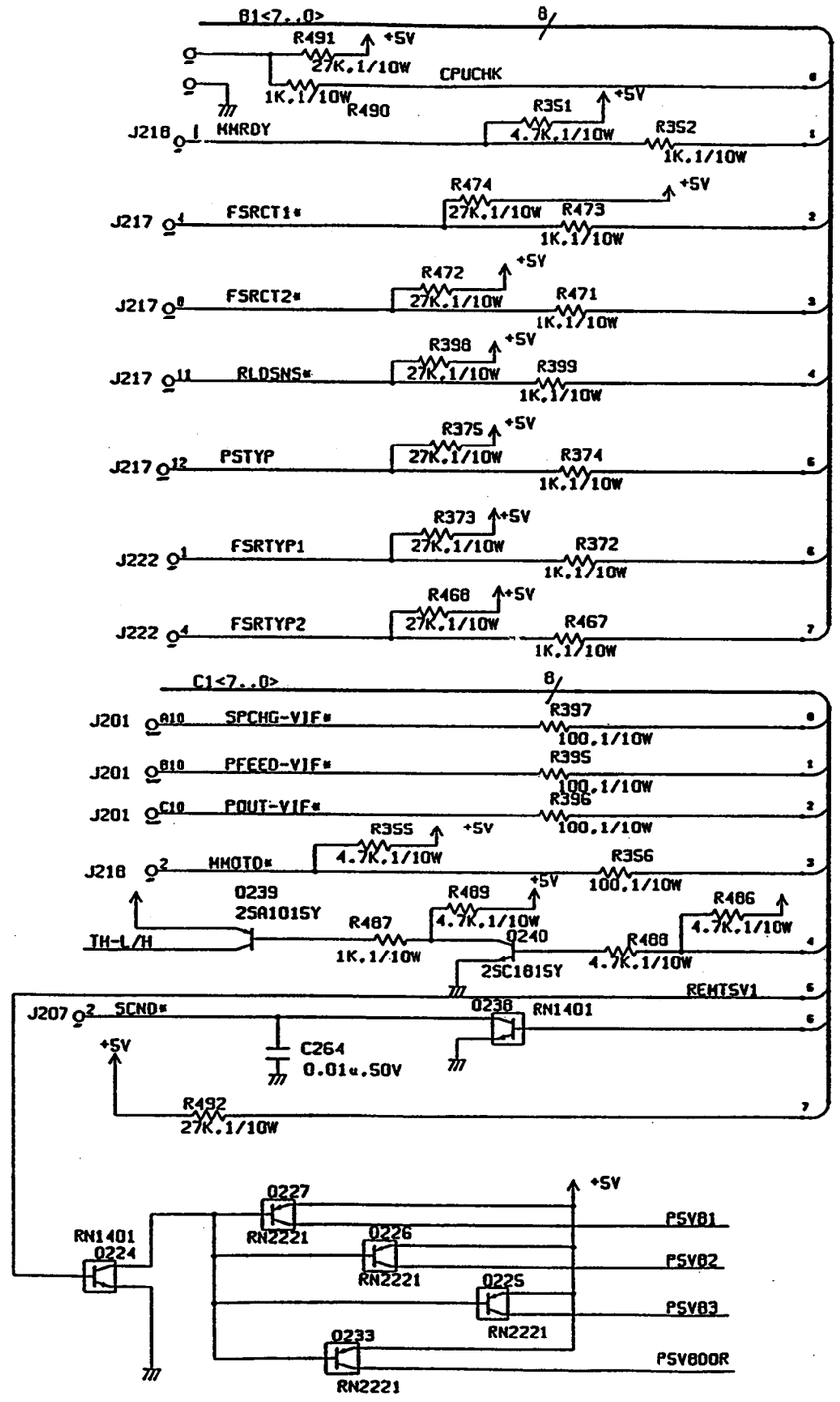

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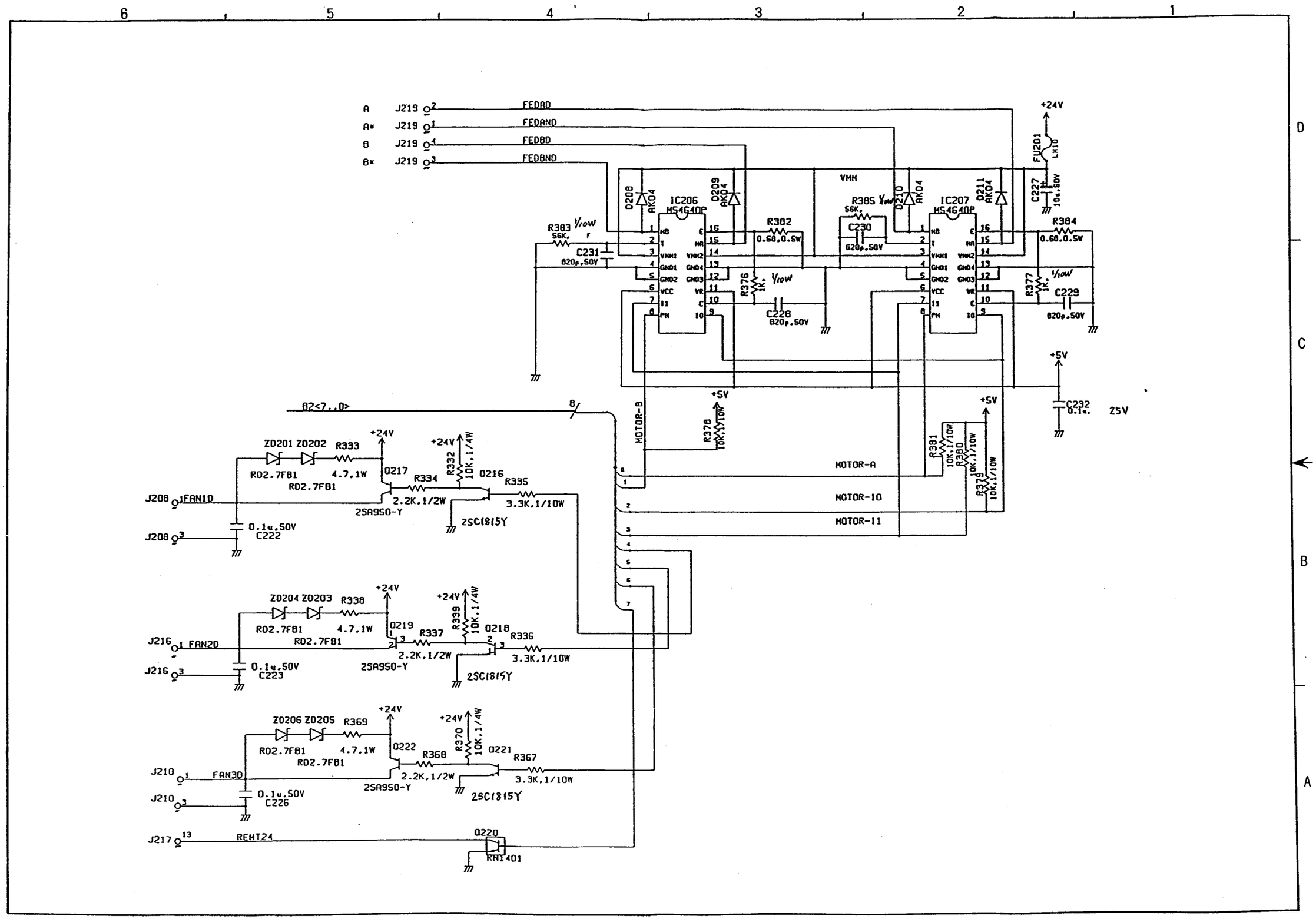

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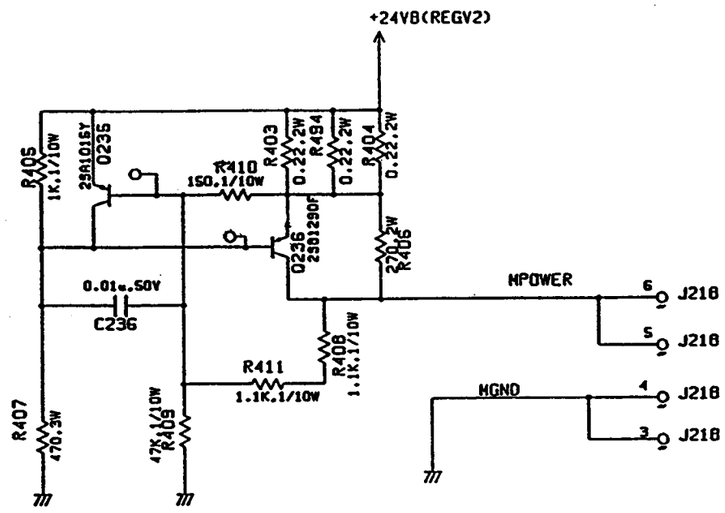

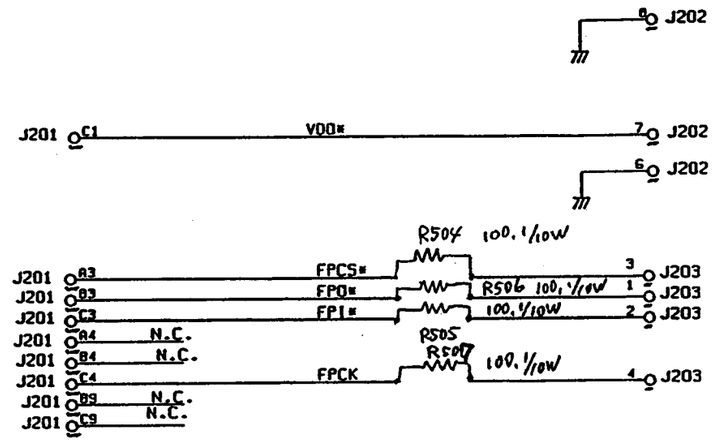

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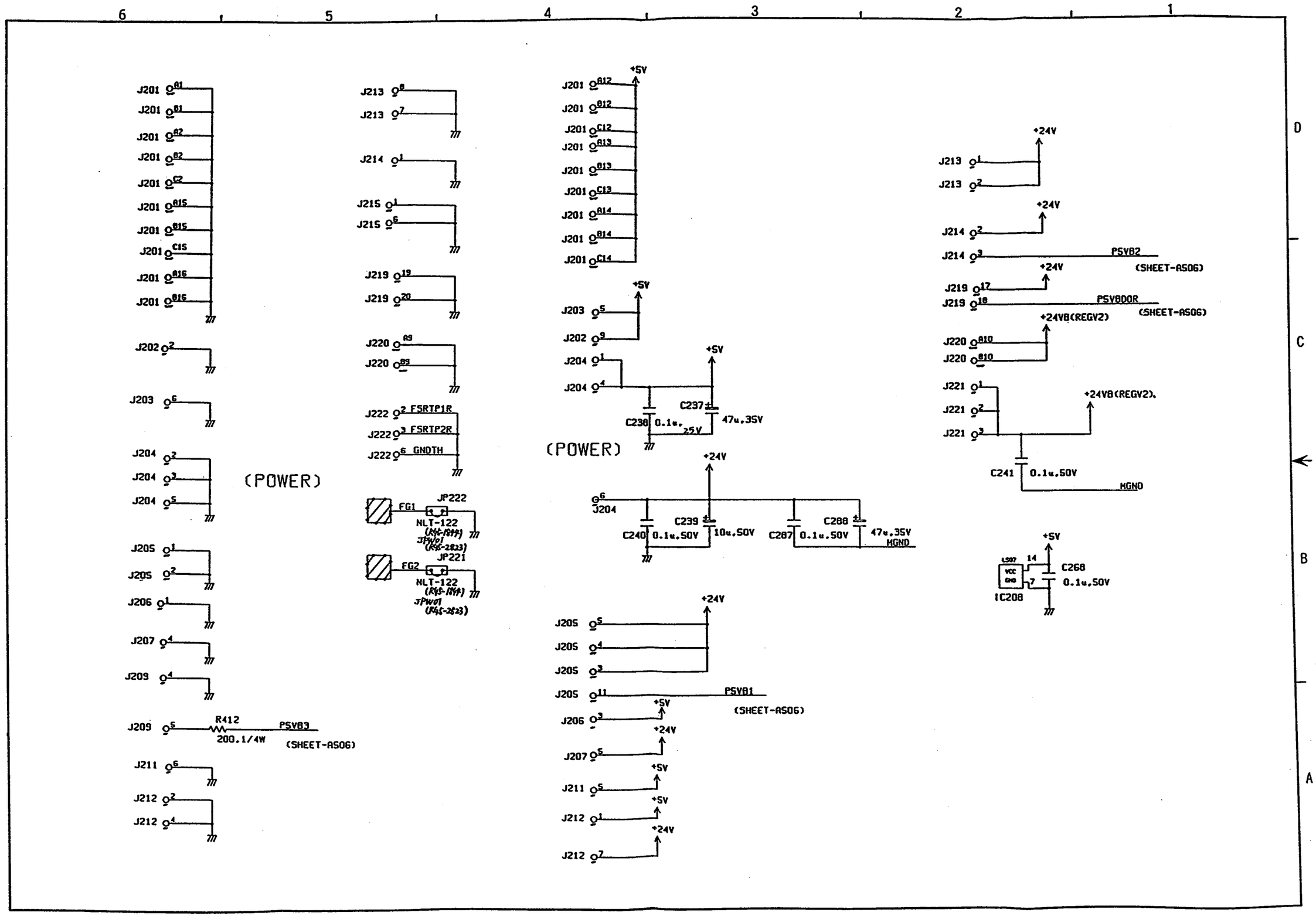

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 2-	RG5-1844-050		1	DC CONTROLLER PCB ASS'Y	
C 201	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 204	VW4-2835-471		1	CAPACITOR, 470PF, 50V	
C 205	VW4-2835-471		1	CAPACITOR, 470PF, 50V	
C 206	VW4-2835-471		1	CAPACITOR, 470PF, 50V	
C 207	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 208	VW4-2835-471		1	CAPACITOR, 470PF, 50V	
C 209	VW4-2234-101		1	CAPACITOR, 100PF, 50V	
C 210	VW4-2234-101		1	CAPACITOR, 100PF, 50V	
C 211	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 212	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 213	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 214	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 215	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 216	VW4-2234-220		1	CAPACITOR, 22PF, 50V	
C 217	VW4-2234-220		1	CAPACITOR, 22PF, 50V	
C 218	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 221	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 222	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 223	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 224	VW4-2835-331		1	CAPACITOR, 330PF, 50V	
C 225	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 226	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 227	VC8-3040-106		1	CAPACITOR, 10UF, 50V	
C 228	VW4-2234-821		1	CAPACITOR, 820PF, 50V	
C 229	VW4-2234-821		1	CAPACITOR, 820PF, 50V	
C 230	VW4-2234-821		1	CAPACITOR, 820PF, 50V	
C 231	VW4-2234-821		1	CAPACITOR, 820PF, 50V	
C 232	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 236	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 237	VC8-3030-476		1	CAPACITOR, 47UF, 35V	
C 238	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 239	VC8-3040-106		1	CAPACITOR, 10UF, 50V	
C 240	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 241	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 242	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 243	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 244	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 245	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 246	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 247	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 248	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 249	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 250	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 251	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 252	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 253	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 254	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 255	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 256	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 2- C 257	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 258	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 259	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 260	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 261	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 262	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 263	VW4-2234-680		1	CAPACITOR, 68PF, 50V	
C 264	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 265	VW4-2835-471		1	CAPACITOR, 470PF, 50V	
C 266	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C 267	VW4-2835-102		1	CAPACITOR, 1000PF, 50V	
C 269	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 270	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 271	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 272	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 273	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 274	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 275	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 276	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 277	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 278	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 279	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 280	VW4-2234-680		1	CAPACITOR, 68PF, 50V	
C 281	VW4-2234-470		1	CEPACITOR, 47PF, 50V	
C 282	VW4-2234-680		1	CAPACITOR, 68PF, 50V	
C 283	VW4-2234-680		1	CAPACITOR, 68PF, 50V	
C 284	VW4-2234-680		1	CAPACITOR, 68PF, 50V	
C 285	VW4-2234-680		1	CAPACITOR, 68PF, 50V	
C 286	VW4-2234-680		1	CAPACITOR, 68PF, 50V	
C 287	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 288	VC8-3030-476		1	CAPACITOR, 47UF, 35V	
C 289	VW4-2234-680		1	CAPACITOR, 68PF, 50V	
C 290	VW4-2234-101		1	CAPACITOR, 100PF, 50V	
C 291	VW4-2234-680		1	CAPACITOR, 68PF, 50V	
D 202	WA1-0972-000		1	DIODE, S5688B	
D 203	WA1-0972-000		1	DIODE, S5688B	
D 204	WA1-0972-000		1	DIODE, S5688B	
D 205	WA1-0972-000		1	DIODE, S5688B	
D 206	WA1-0972-000		1	DIODE, S5688B	
D 207	WA1-0972-000		1	DIODE, S5688B	
D 208	WA1-0777-000		1	DIODE, AK04	
D 209	WA1-0777-000		1	DIODE, AK04	
D 210	WA1-0777-000		1	DIODE, AK04	
D 211	WA1-0777-000		1	DIODE, AK04	
D 221	WA1-5410-000		1	DIODE, RB441Q	
D 222	WA1-5410-000		1	DIODE, RB441Q	
D 223	WA1-5410-000		1	DIODE, RB441Q	
D 224	WA1-5410-000		1	DIODE, RB441Q	
D 225	WA1-5410-000		1	DIODE, RB441Q	
D 226	WA1-5410-000		1	DIODE, RB441Q	

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CD 2- D 227	WA1-5410-000		1	DIODE, RB441Q	
D 228	WA1-5410-000		1	DIODE, RB441Q	
D 229	WA1-5410-000		1	DIODE, RB441Q	
D 230	WA1-5410-000		1	DIODE, RB441Q	
D 231	WA1-5410-000		1	DIODE, RB441Q	
D 232	WA1-5410-000		1	DIODE, RB441Q	
D 233	WA1-5410-000		1	DIODE, RB441Q	
D 234	WA1-5410-000		1	DIODE, RB441Q	
D 235	WA1-5410-000		1	DIODE, RB441Q	
D 236	WA1-5410-000		1	DIODE, RB441Q	
D 237	WA1-5410-000		1	DIODE, RB441Q	
D 238	WA1-5410-000		1	DIODE, RB441Q	
D 239	WA1-5410-000		1	DIODE, RB441Q	
D 240	WA1-5410-000		1	DIODE, RB441Q	
D 241	WA1-5410-000		1	DIODE, RB441Q	
FU201	VD5-0221-001		1	FUSE, 48V, 1A	
IC201	RH4-0188-060		1	IC, HD6433388F, M-CON	
IC202	WA4-0971-000		1	IC, HA17358F, OP AMP	
IC203	FH4-5489-000		1	IC, M65022FP, GATE ARRAY	
IC204	WA4-5587-000		1	IC, PST591DMT RESET	
IC205	RH4-5310-000		1	IC, CF43051PG, GATE ARRAY	
IC206	WA4-1035-000		1	TRANSISTOR ARRAY, M54640P	
IC207	WA4-1035-000		1	TRANSISTOR ARRAY, M54640P	
J 201	VS1-6044-048		1	CONNECTOR, 48P	
J 202	VS1-5517-010		1	CONNECTOR, 10P	
J 203	VS1-5517-006		1	CONNECTOR, 6P	
J 204	WS3-0402-000		1	CONNECTOR, 6P	
J 205	VS1-0755-011		1	CONNECTOR, 11P	
J 206	VS1-5517-003		1	CONNECTOR, 3P	
J 207	VS1-0755-005		1	CONNECTOR, 5P	
J 208	VS1-5450-003		1	CONNECTOR, 3P	
J 209	VS1-5517-005		1	CONNECTOR, 5P	
J 210	VS1-5517-003		1	CONNECTOR, 3P	
J 212	VS1-5450-007		1	CONNECTOR, 7P	
J 213	VS1-0755-008		1	CONNECTOR, 8P	
J 214	VS1-0755-009		1	CONNECTOR, 9P,MALE	
J 215	VS1-5517-010		1	CONNECTOR, 10P	
J 216	VS1-5450-003		1	CONNECTOR, 3P	
J 217	VS1-5450-013		1	CONNECTOR, 13P	
J 218	VS1-0755-006		1	CONNECTOR, 6P	
J 219	VS1-5031-020		1	CONNECTOR, 20P	
J 220	VS1-0545-020		1	CONNECTOR, 20P	
J 221	VS1-0755-003		1	CONNECTOR, 3P	
J 222	VS1-5517-006		1	CONNECTOR, 6P	
J 223	VS1-0755-002		1	CONNECTOR, 2P	
J 225	VS1-5517-004		1	CONNECTOR, 4P	
L 201	WE8-5209-000		1	INDUCTOR	
L 203	WE8-5209-000		1	INDUCTOR	
L 204	WE8-5209-000		1	INDUCTOR	
L 205	WE8-5209-000		1	INDUCTOR	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 2- Q 208	WA2-1115-000		1	TRANSISTOR, 2SD2018	
Q 212	WA2-1115-000		1	TRANSISTOR, 2SD2018	
Q 213	WA2-1115-000		1	TRANSISTOR, 2SD2018	
Q 214	WA2-1115-000		1	TRANSISTOR, 2SD2018	
Q 215	WA2-1115-000		1	TRANSISTOR, 2SD2018	
Q 216	WA2-0124-000		1	TRANSISTOR, 2SC1815Y	
Q 217	WA2-0317-000		1	TRANSISTOR, 2SA950-Y	
Q 218	WA2-0124-000		1	TRANSISTOR, 2SC1815Y	
Q 219	WA2-0317-000		1	TRANSISTOR, 2SA950-Y	
Q 220	WA2-0833-000		1	TRANSISTOR, RN1401	
Q 221	WA2-0124-000		1	TRANSISTOR, 2SC1815Y	
Q 222	WA2-0317-000		1	TRANSISTOR, 2SA950-Y	
Q 223	WA2-1115-000		1	TRANSISTOR, 2SD2018	
Q 224	WA2-0833-000		1	TRANSISTOR, RN1401	
Q 225	WA2-5763-000		1	TRANSISTOR, RN2221	
Q 226	WA2-5763-000		1	TRANSISTOR, RN2221	
Q 227	WA2-5763-000		1	TRANSISTOR, RN2221	
Q 233	WA2-5763-000		1	TRANSISTOR, RN2221	
Q 235	WA2-0135-000		1	TRANSISTOR, 2SA1015Y	
Q 236	WA2-5746-000		1	TRANSISTOR, 2SB1290F	
Q 238	WA2-0833-000		1	TRANSISTOR, RN1401	
Q 239	WA2-0135-000		1	TRANSISTOR, 2SA1015Y	
Q 240	WA2-0124-000		1	TRANSISTOR, 2SC1815Y	
Q 241	WA2-0124-000		1	TRANSISTOR, 2SC1815Y	
Q 242	WA2-0317-000		1	TRANSISTOR, 2SA950-Y	
R 201	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 202	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 203	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 204	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 205	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 213	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 214	VR5-6412-401		1	RESISTOR, 400 OHM, 1/10W	
R 215	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 216	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 217	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 218	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 219	VV1-7118-222		1	RESISTOR, 2.2KOHM, 1/10W	
R 220	VV1-7118-395		1	RESISTOR, 3.9MOHM, 1/10W	
R 221	VV1-7118-395		1	RESISTOR, 3.9MOHM, 1/10W	
R 222	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 223	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 224	VR7-0611-203		1	RESISTOR, 120KOHM, 1/10W	
R 225	VR7-0611-502		1	RESISTOR, 15KOHM, 1/10W	
R 226	VV1-7118-203		1	RESISTOR, 20KOHM, 1/10W	
R 227	VV1-7118-203		1	RESISTOR, 20KOHM, 1/10W	
R 228	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 229	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 230	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 231	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 232	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	

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FIGURE & KEY NO.		PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 2-	R 233	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 234	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 235	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 236	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 237	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 238	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 239	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 240	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 241	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 242	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 243	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 246	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 247	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 251	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 252	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 253	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 254	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	R 255	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 256	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 257	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 258	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
	R 259	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 260	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 261	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 262	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 263	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 264	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 265	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 266	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 267	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 268	VV1-7118-471		1	RESISTOR, 470 OHM, 1/10W	
	R 269	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 270	VR5-3680-162		1	RESISTOR, 1.6KOHM, 1/4W	
	R 271	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 272	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
	R 273	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 274	VR5-3680-751		1	RESISTOR, 750 OHM, 1/4W	
	R 275	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 276	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 277	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 278	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 279	VR5-3680-913		1	RESISTOR, 91KOHM, 1/4W	
	R 283	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 284	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 285	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 286	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 287	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 288	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	R 289	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	R 290	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 2- R 291	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 292	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 293	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 294	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 295	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 296	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 297	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 298	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 299	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 300	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 301	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 302	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 303	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 304	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 305	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 306	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 307	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 308	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 309	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 310	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 311	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 312	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 313	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 314	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 315	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 316	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 317	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 318	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 319	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 320	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 321	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 322	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 323	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 324	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 325	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 326	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 327	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 328	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 329	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 330	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 331	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 332	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 333	VR5-8020-479		1	RESISTOR, 4.7 OHM, 1W	
R 334	VR5-1480-222		1	RESISTOR, 2.2KOHM, 1/2W	
R 335	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 336	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 337	VR5-1480-222		1	RESISTOR, 2.2KOHM, 1/2W	
R 338	VR5-8020-479		1	RESISTOR, 4.7 OHM, 1W	
R 339	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 340	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	

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FIGURE & KEY NO.		PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 2-	R 341	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
	R 342	VR5-3714-122		1	RESISTOR, 41.2 OHM, 1/4W	
	R 343	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	R 344	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 349	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 350	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 351	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
	R 352	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 355	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
	R 356	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 357	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 358	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 359	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 360	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 361	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 362	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 363	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 364	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 365	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	R 366	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 367	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	R 368	VR5-1480-222		1	RESISTOR, 2.2KOHM, 1/2W	
	R 369	VR5-8020-479		1	RESISTOR, 4.7 OHM, 1W	
	R 370	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
	R 371	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	R 372	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 373	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 374	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 375	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 376	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 377	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 378	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 379	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 380	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 381	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R 382	VR9-5216-000		1	RESISTOR, 0.68 OHM, 1/2W	
	R 383	VV1-7118-563		1	RESISTOR, 56KOHM, 1/10W	
	R 384	VR9-5216-000		1	RESISTOR, 0.68 OHM, 1/2W	
	R 385	VV1-7118-563		1	RESISTOR, 56KOHM, 1/10W	
	R 389	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 390	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 391	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 392	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 395	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 396	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 397	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R 398	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R 399	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R 401	VV1-7118-473		1	RESISTOR, 47KOHM, 1/10W	
	R 402	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 2- R 403	VR9-5087-000		1	RESISTOR, 0.22 OHM, 2W	
R 404	VR9-5087-000		1	RESISTOR, 0.22 OHM, 2W	
R 405	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 406	VR5-4150-271		1	RESISTOR, 270 OHM, 2W	
R 407	VR5-2360-471		1	RESISTOR, 470 OHM, 3W	
R 408	VV1-7118-112		1	RESISTOR, 1.1KOHM, 1/10W	
R 409	VV1-7118-473		1	RESISTOR, 47KOHM, 1/10W	
R 410	VV1-7118-151		1	RESISTOR, 150 OHM, 1/10W	
R 411	VV1-7118-112		1	RESISTOR, 1.1KOHM, 1/10W	
R 412	VR5-3680-201		1	RESISTOR, 200 OHM, 1/4W	
R 414	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 417	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 418	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 421	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 422	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 423	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 424	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 427	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 428	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 429	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 431	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 450	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 451	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 452	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 453	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 454	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 455	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 456	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 457	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 458	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 459	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 460	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 463	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 464	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 465	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 466	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 467	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 468	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 469	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 470	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 471	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 472	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 473	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 474	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 477	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 479	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 480	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 481	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 482	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 485	VR5-6411-503		1	RESISTOR, 150KOHM, 1/4W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 2- R 486	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R 487	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 488	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R 489	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R 490	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 491	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 492	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R 494	VR9-5087-000		1	RESISTOR, 0.22 OHM, 2W	
R 496	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 497	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 498	VR5-8020-479		1	RESISTOR, 4.7 OHM, 1W	
R 499	VR5-1480-222		1	RESISTOR, 2.2KOHM, 1/2W	
R 500	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 501	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 502	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 503	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 504	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 505	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 506	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 507	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 508	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
SW201	WC2-0141-000		1	SWITCH, PUSH	
X 201	RH5-0053-000		1	CRYSTAL, OSCILLATOR	
X 202	RH5-0091-000		1	CRYSTAL, OSCILLATOR	
ZD201	WA1-5365-000		1	DIODE, ZENER, RD2.7FB1	
ZD202	WA1-5365-000		1	DIODE, ZENER, RD2.7FB1	
ZD203	WA1-5365-000		1	DIODE, ZENER, RD2.7FB1	
ZD204	WA1-5365-000		1	DIODE, ZENER, RD2.7FB1	
ZD205	WA1-5365-000		1	DIODE, ZENER, RD2.7FB1	
ZD206	WA1-5365-000		1	DIODE, ZENER, RD2.7FB1	
ZD207	WA1-5365-000		1	DIODE, ZENER, RD2.7FB1	
ZD208	WA1-5365-000		1	DIODE, ZENER, RD2.7FB1	

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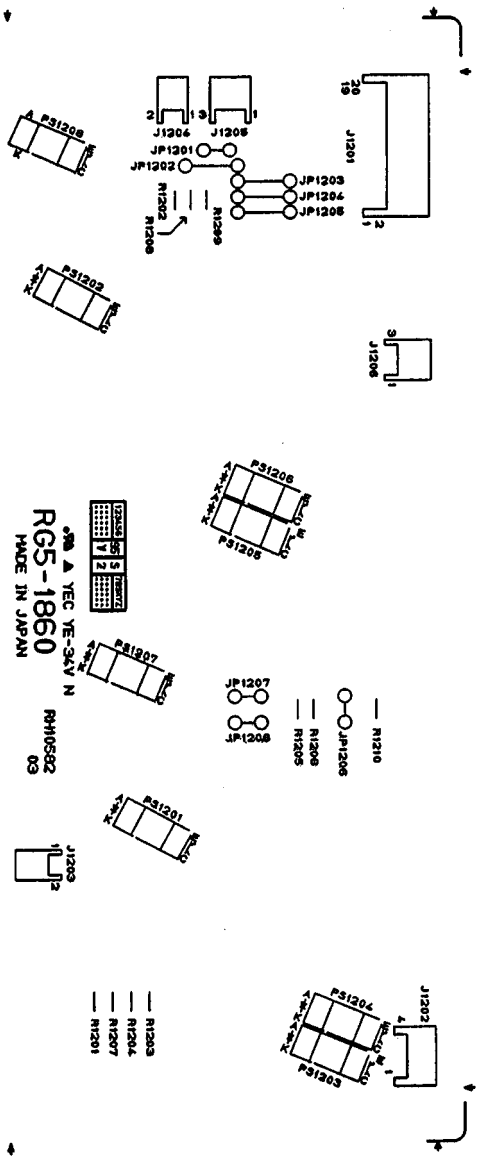
FIGURE CD 3 PAPER PICK-UP PCB ASS'Y



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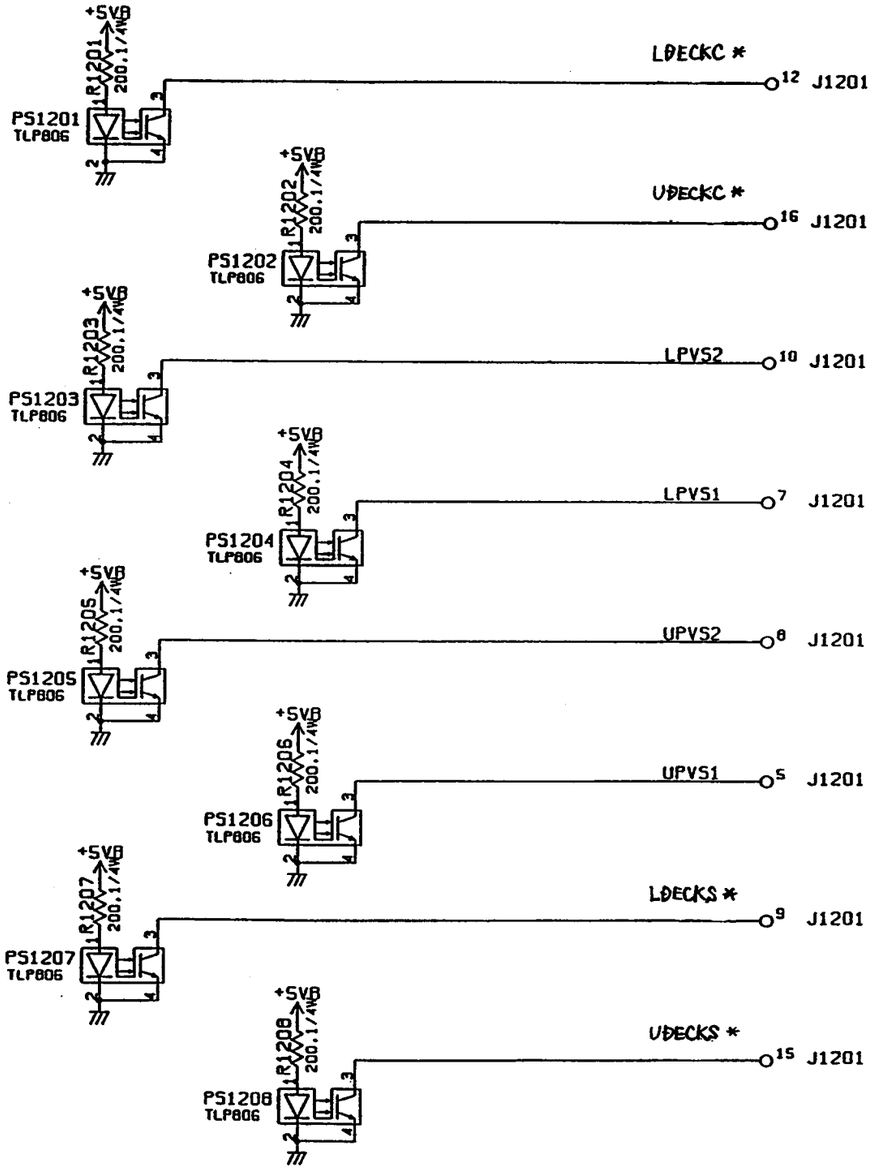

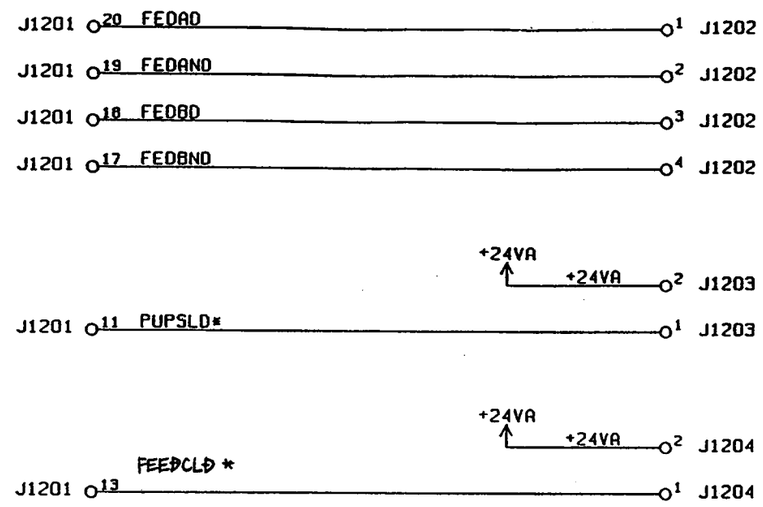

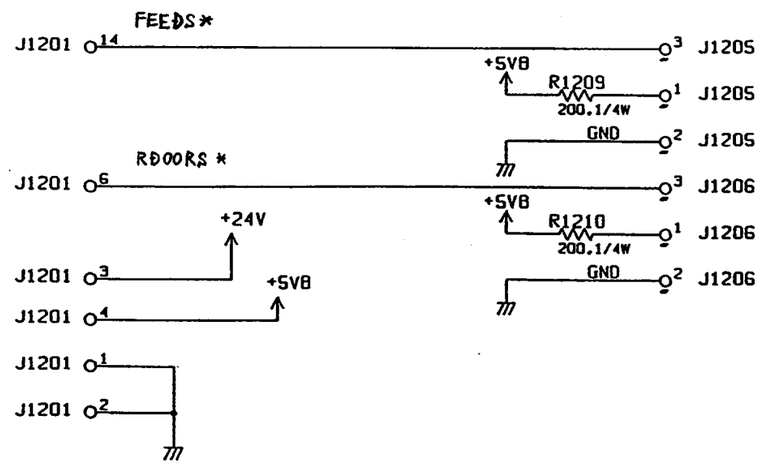

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 3-	RG5-1860-000		1	PAPER PICK-UP PCB ASS'Y	
J1201	VS3-5013-020		1	CONNECTOR, 20P	
J1202	VS1-5451-004		1	CONNECTOR, 4P	
J1203	VS1-1029-002		1	CONNECTOR, 2P	
J1204	VS1-1029-002		1	CONNECTOR, 2P	
J1205	VS1-1029-003		1	CONNECTOR, 3P	
J1206	VS1-1029-003		1	CONNECTOR, 3P	
PS1201	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS1202	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS1203	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS1204	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS1205	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS1206	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS1207	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS1208	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
R1201	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1202	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1203	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1204	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1205	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1206	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1207	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1208	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1209	VR5-3680-201		1	RESISTOR, 200 OHM, 1/4W	
R1210	VR5-3680-201		1	RESISTOR, 200 OHM, 1/4W	

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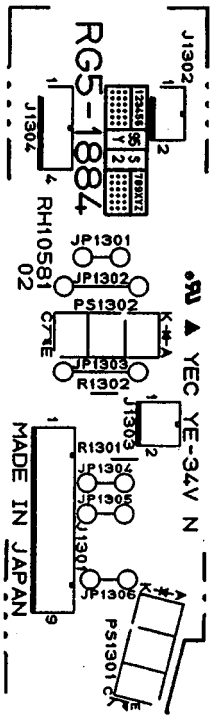
FIGURE CD 4 MULTI-PURPOSE TRAY PCB ASS'Y



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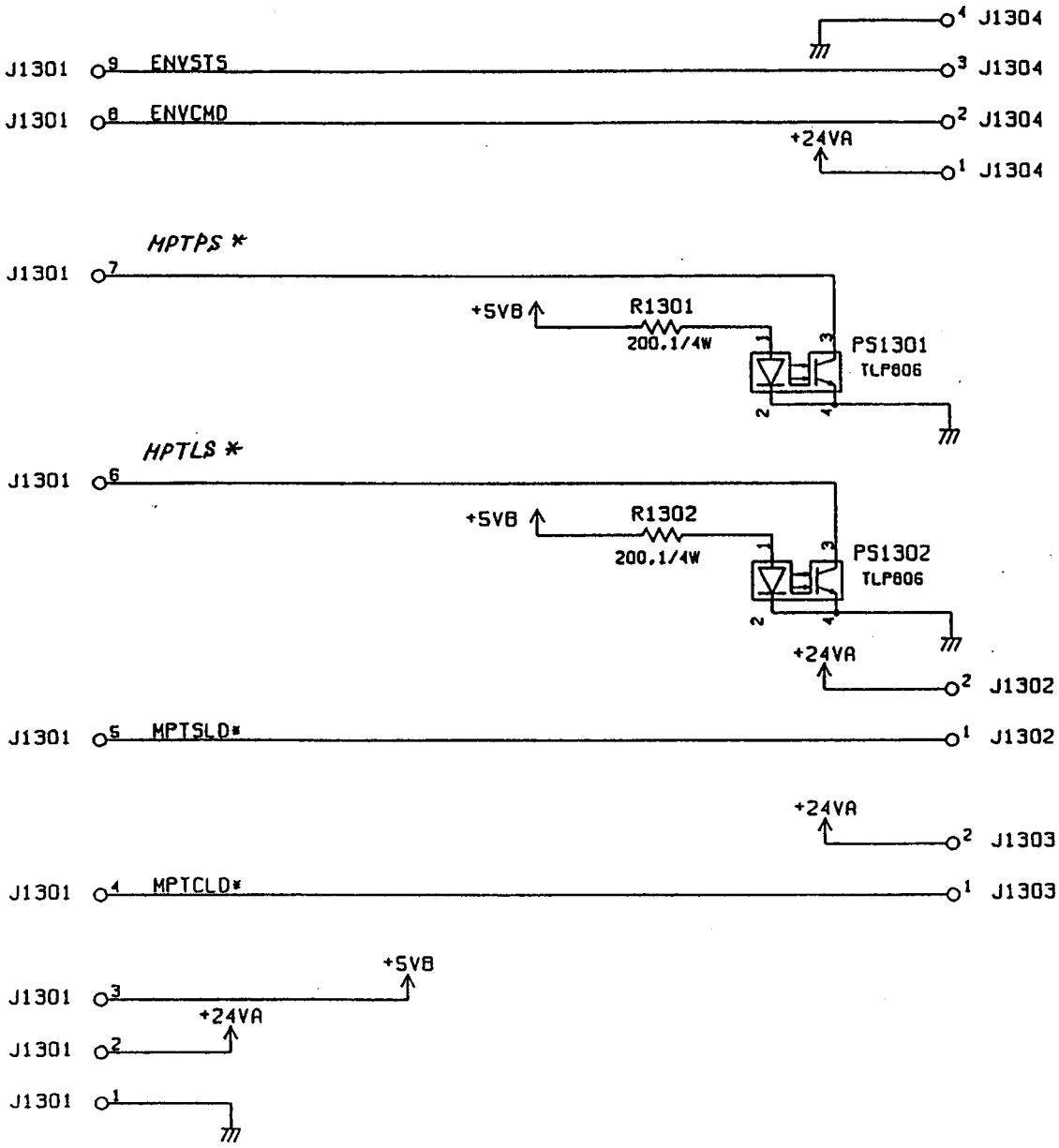

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 4-	RG5-1884-000		1	MULTI-PURPOSE TRAY PCB ASS'Y	
J1301	VS1-0755-009		1	CONNECTOR, 9P,MALE	
J1302	VS1-5450-002		1	CONNECTOR, 6P, MALE	
J1303	VS1-5517-002		1	CONNECTOR, 2P	
J1304	VS1-5450-004		1	CONNECTOR, 4P	
PS2301	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
PS2302	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
R1301	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	
R1302	VR5-3680-221		1	RESISTOR, 220 OHM, 1/4W	

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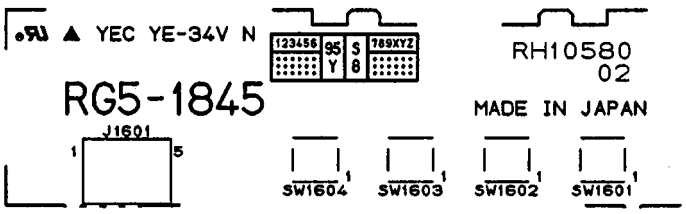
FIGURE CD 5 CASSETTE-SIZE SENSING PCB ASS'Y



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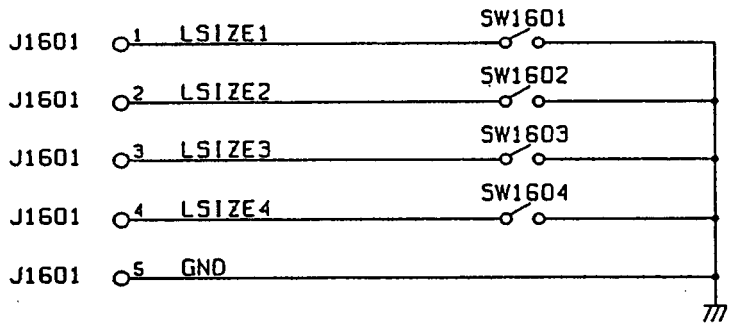

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 5-	RG5-1845-000		1	CASSETTE-SIZE SENSING PCB ASSY	
J1601	VS1-1029-005		1	CONNECTOR, 5P	
SW1601	WC2-0100-000		1	SWITCH, TACT	
SW1602	WC2-0100-000		1	SWITCH, TACT	
SW1603	WC2-0100-000		1	SWITCH, TACT	
SW1604	WC2-0100-000		1	SWITCH, TACT	

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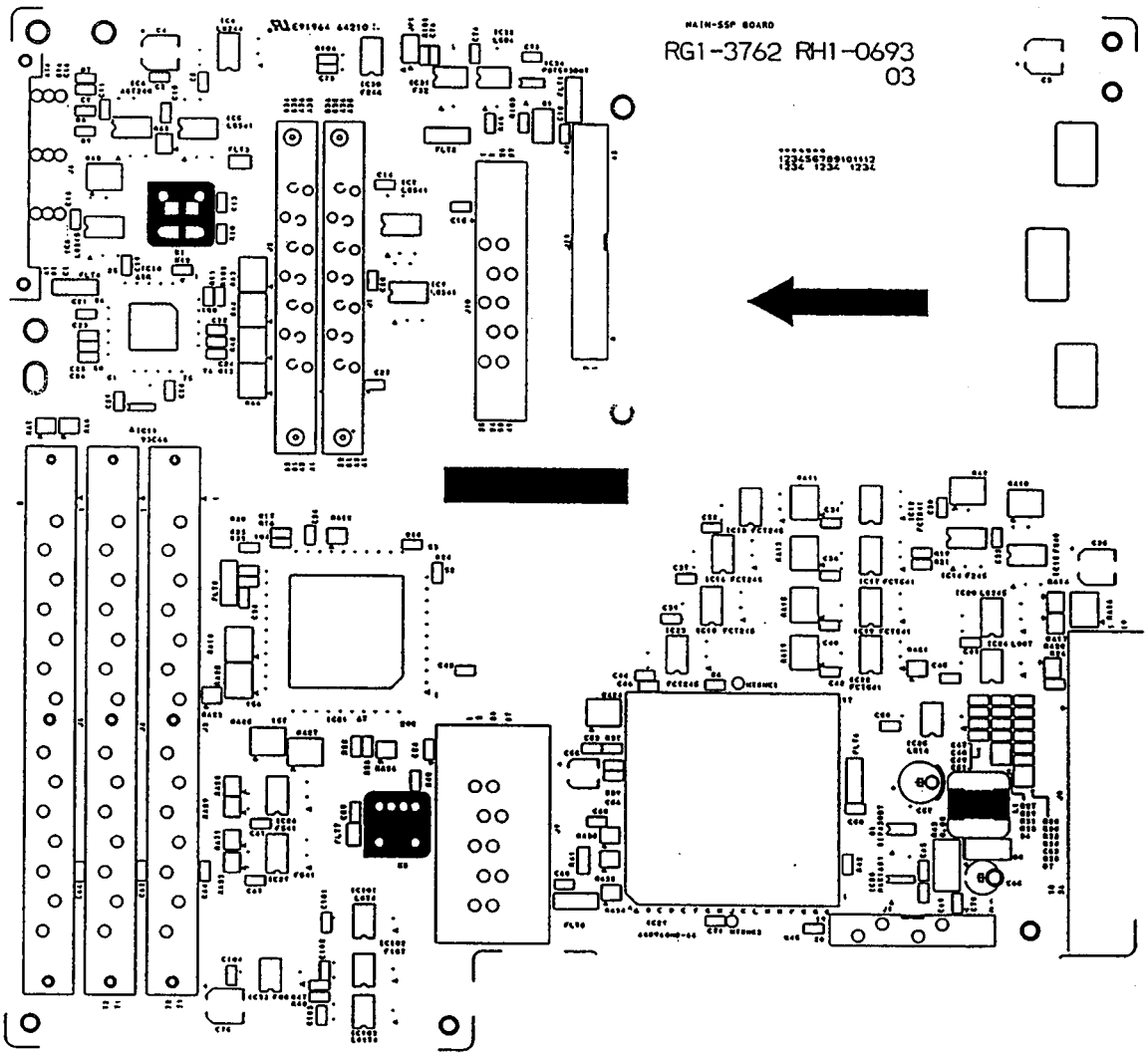
FIGURE CD 6 VIDEO CONTROLLER PCB ASS'Y (100-120V)



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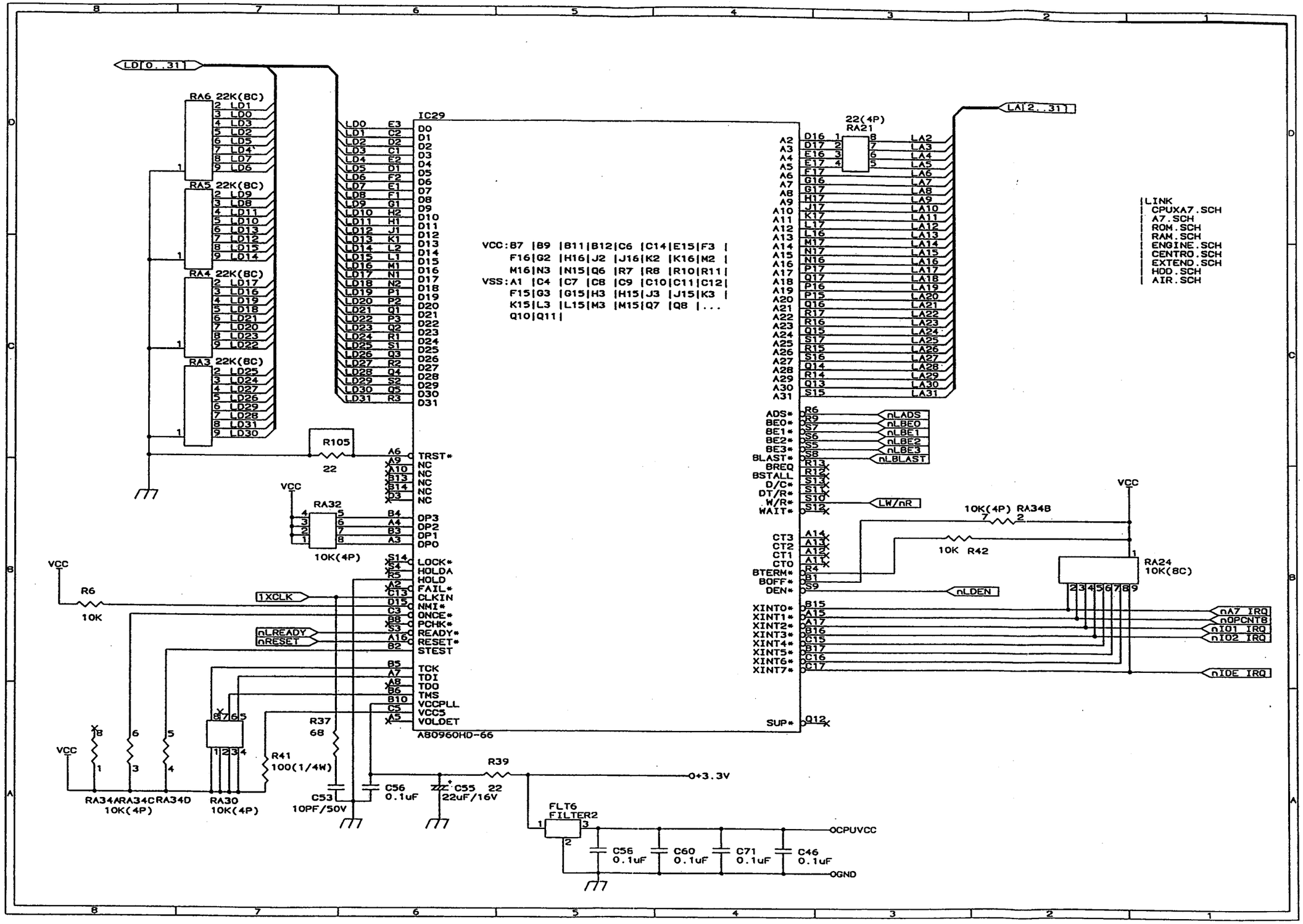

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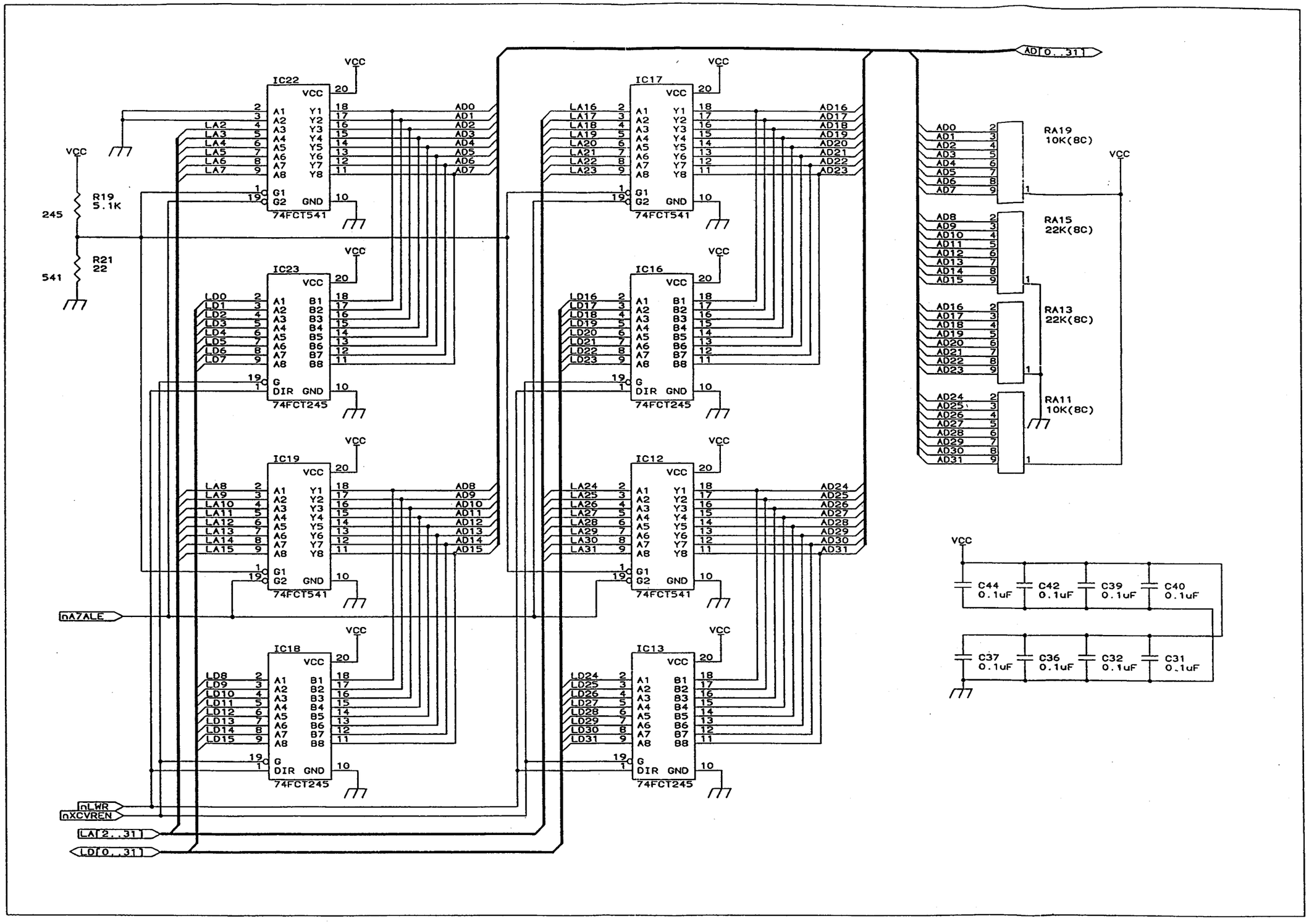

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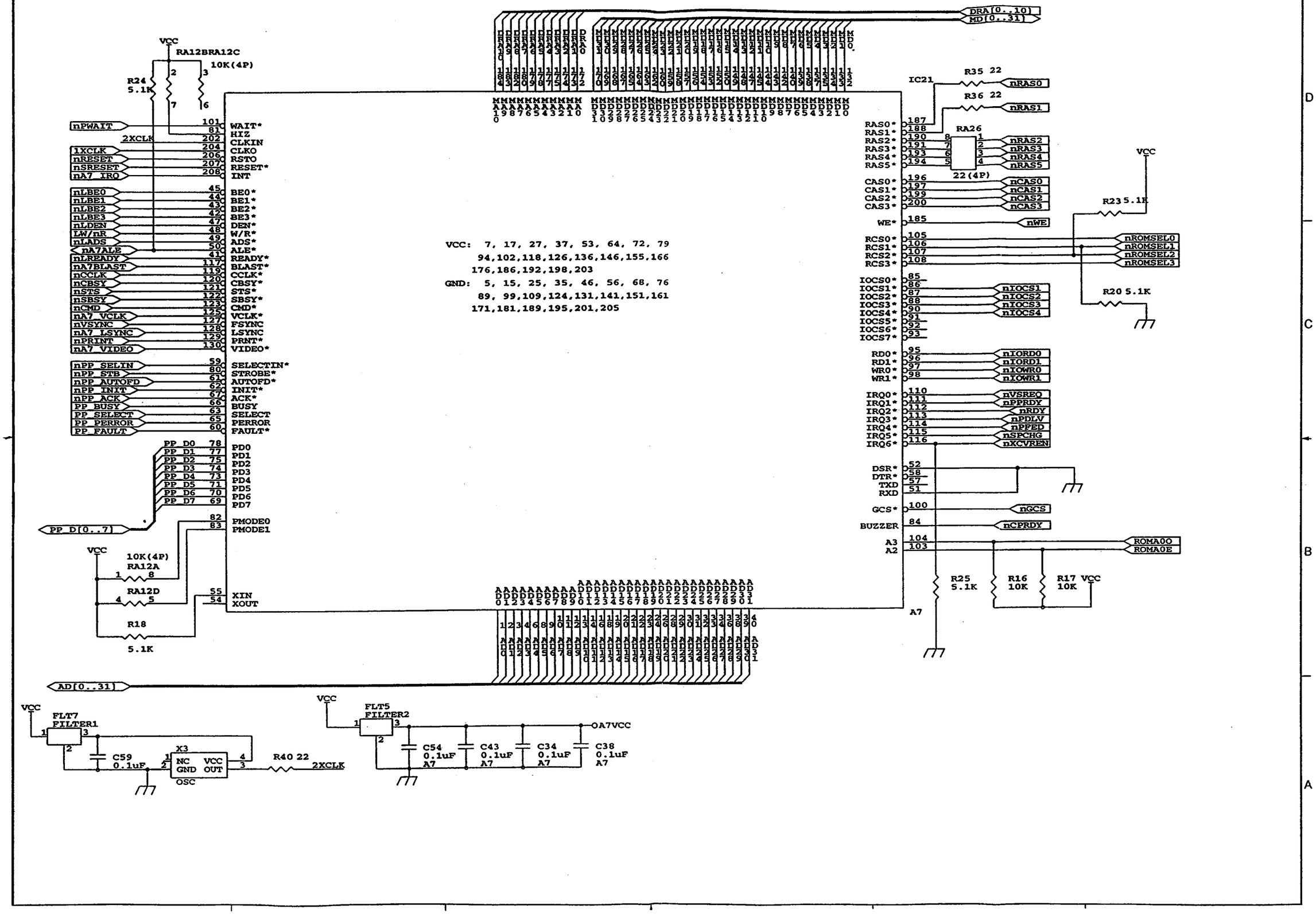

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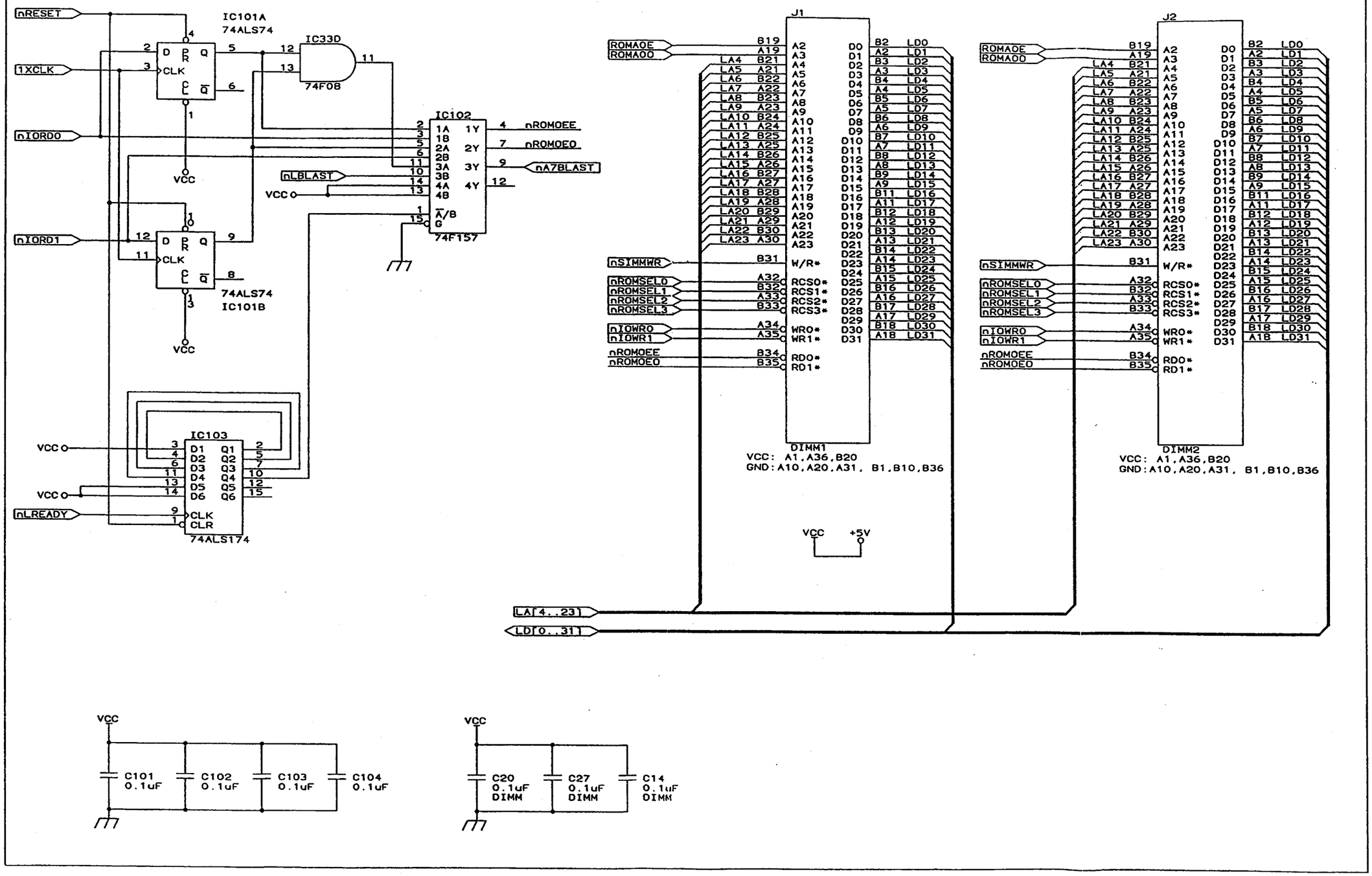

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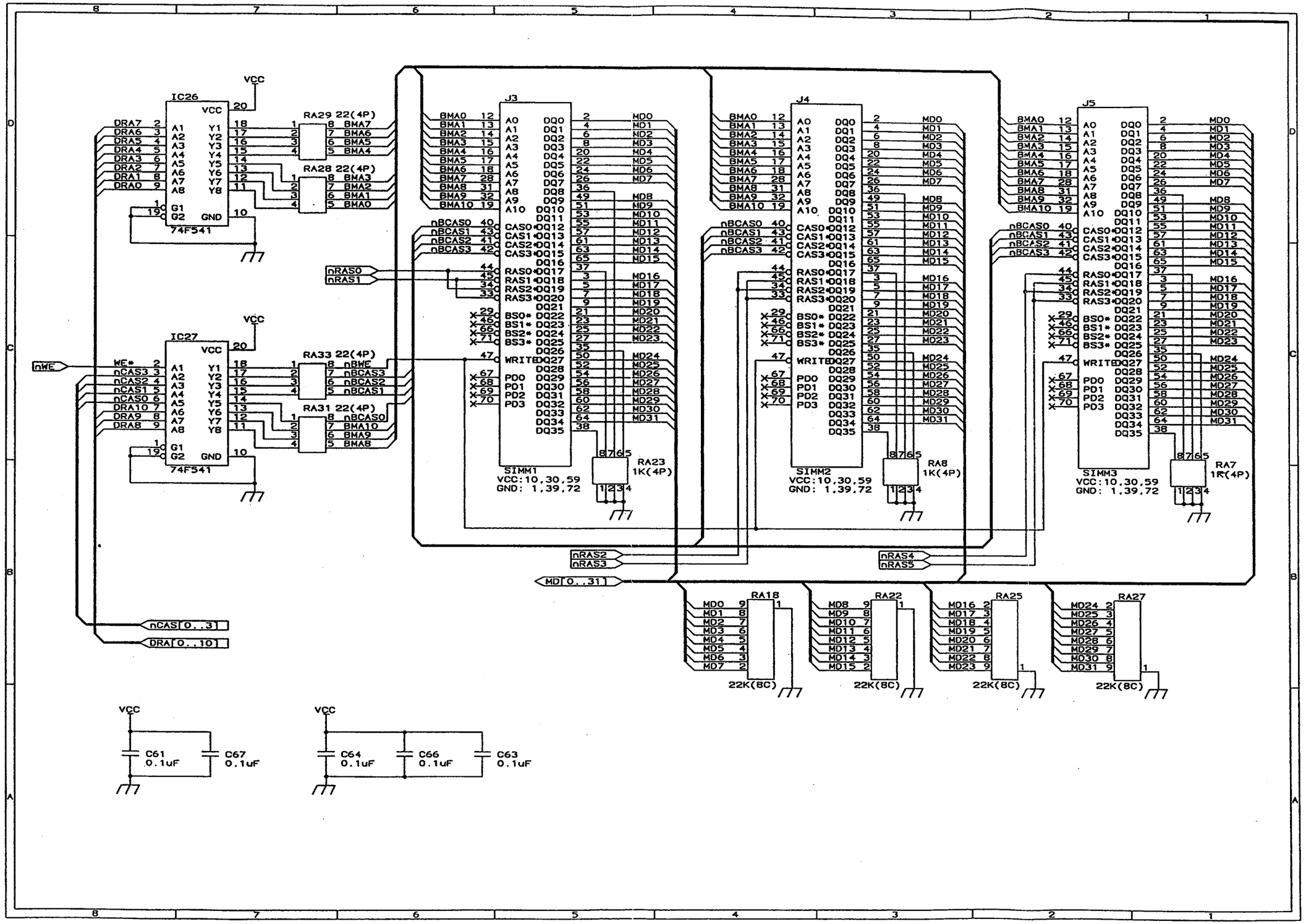

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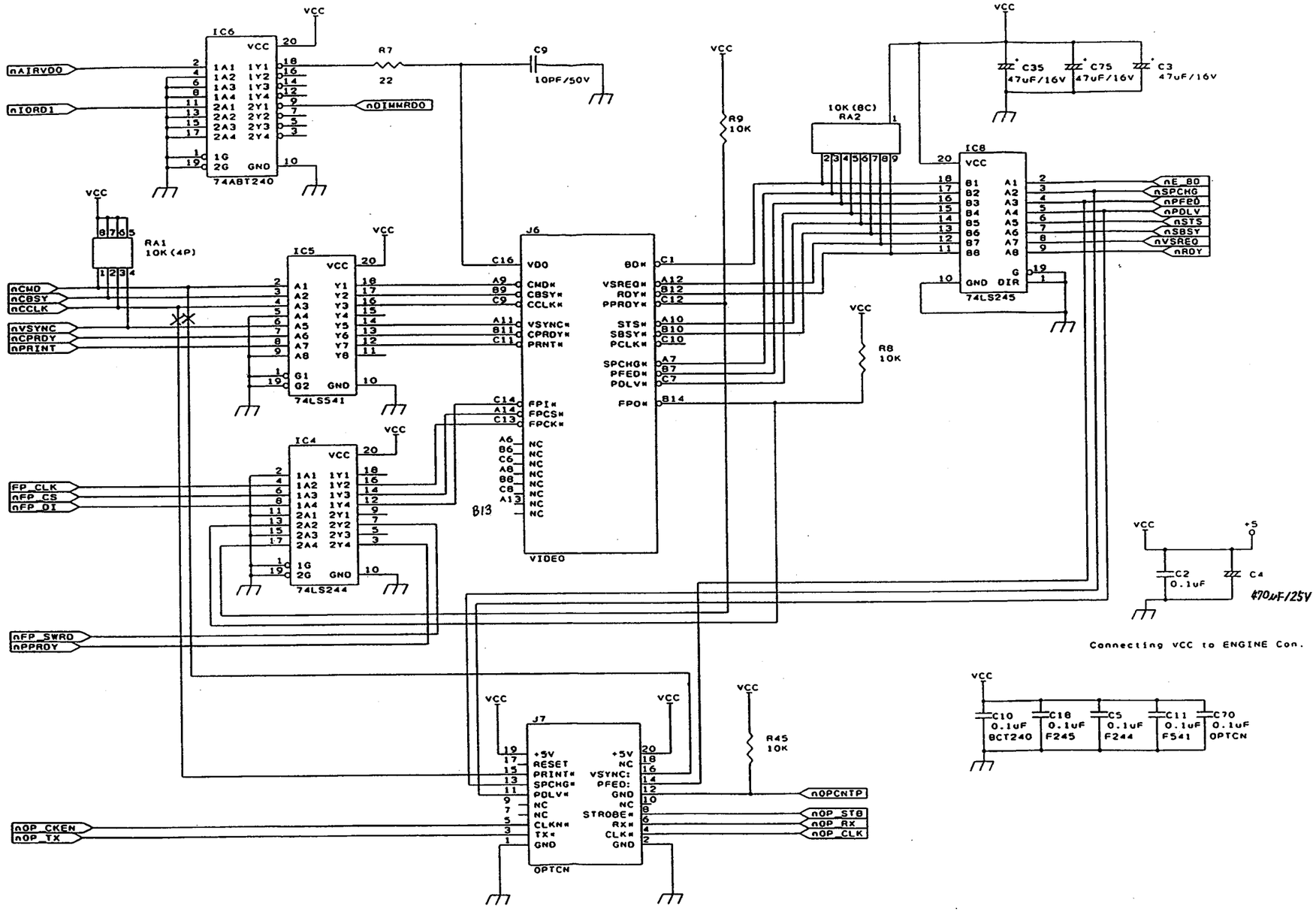

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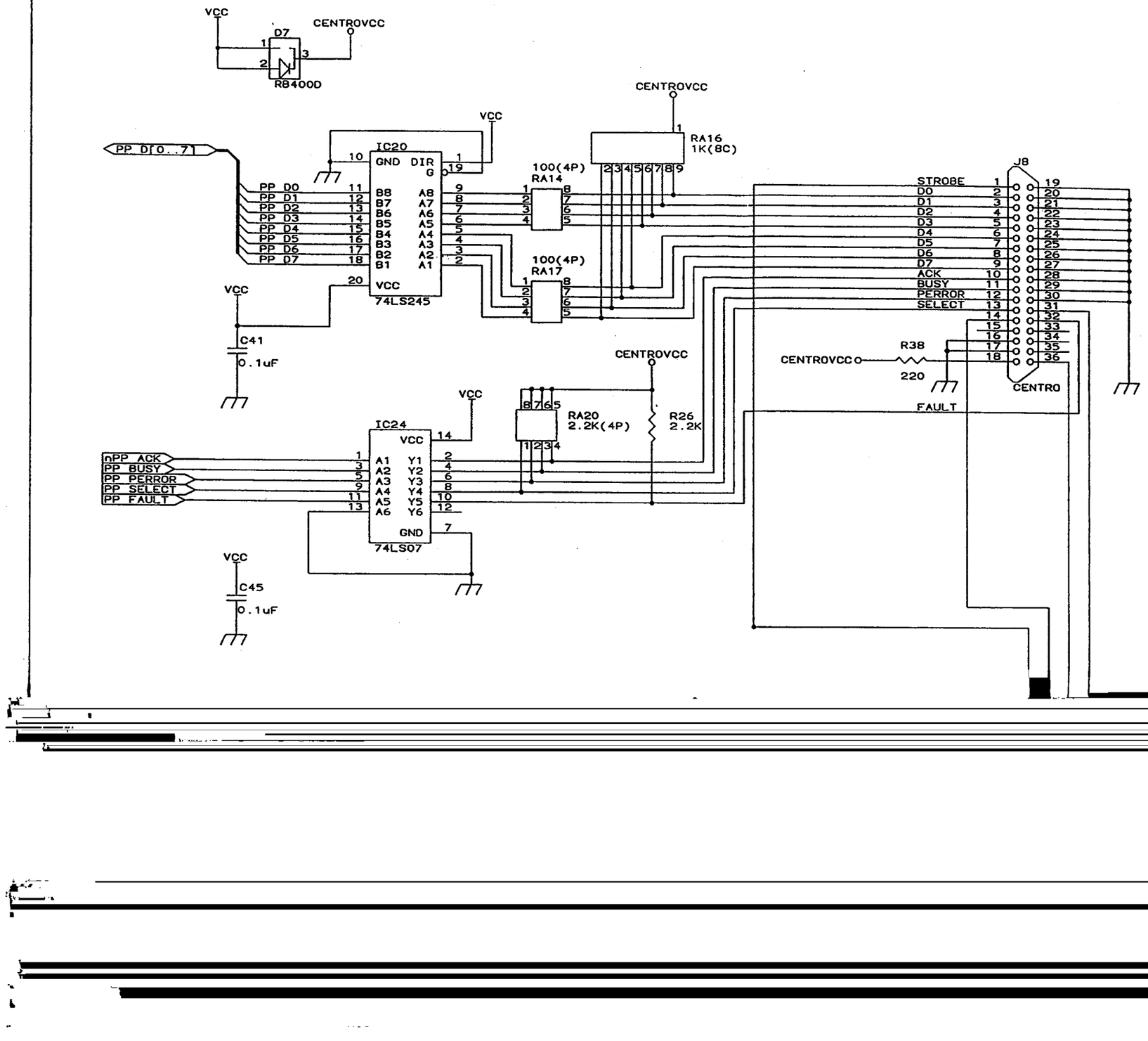

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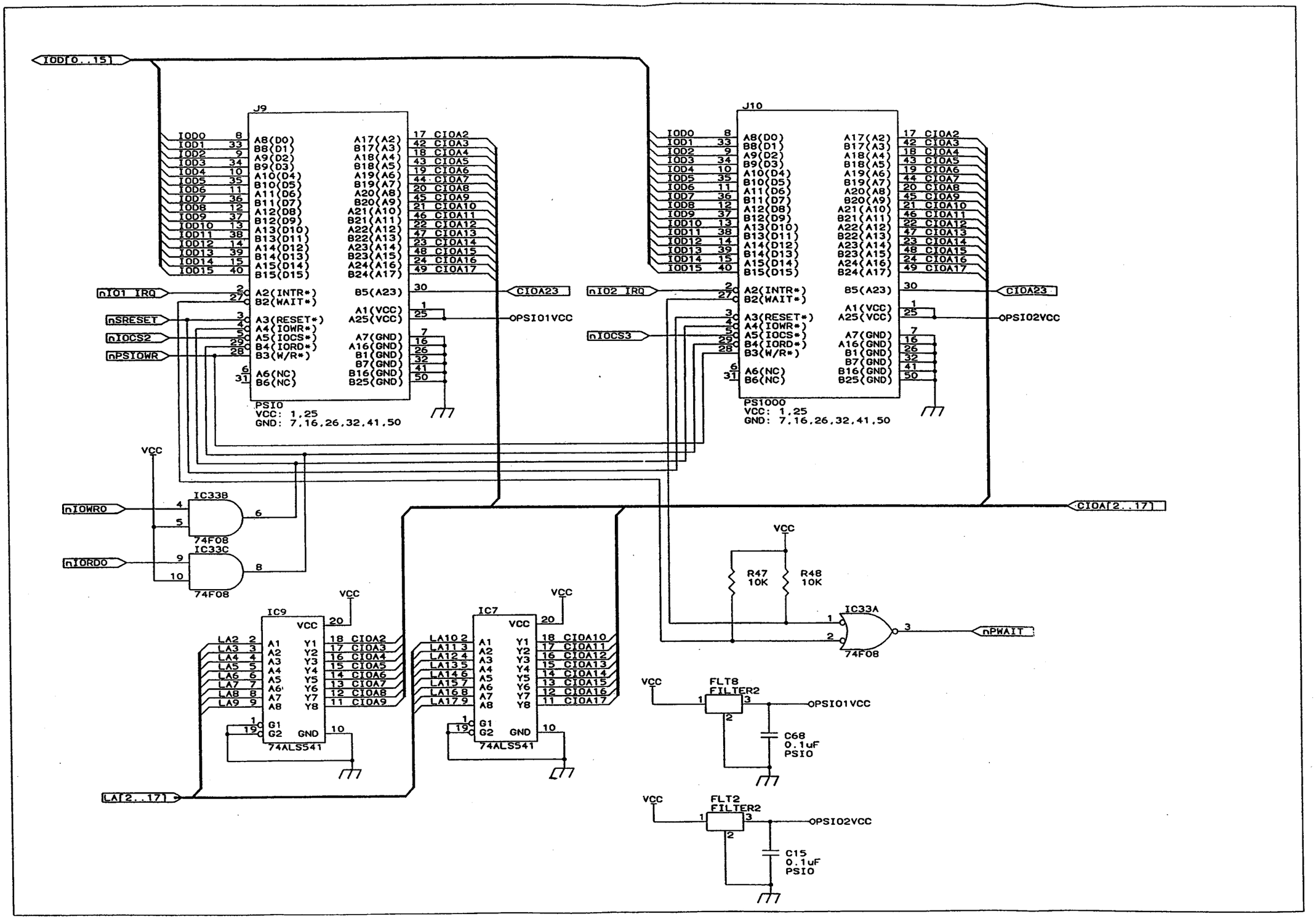

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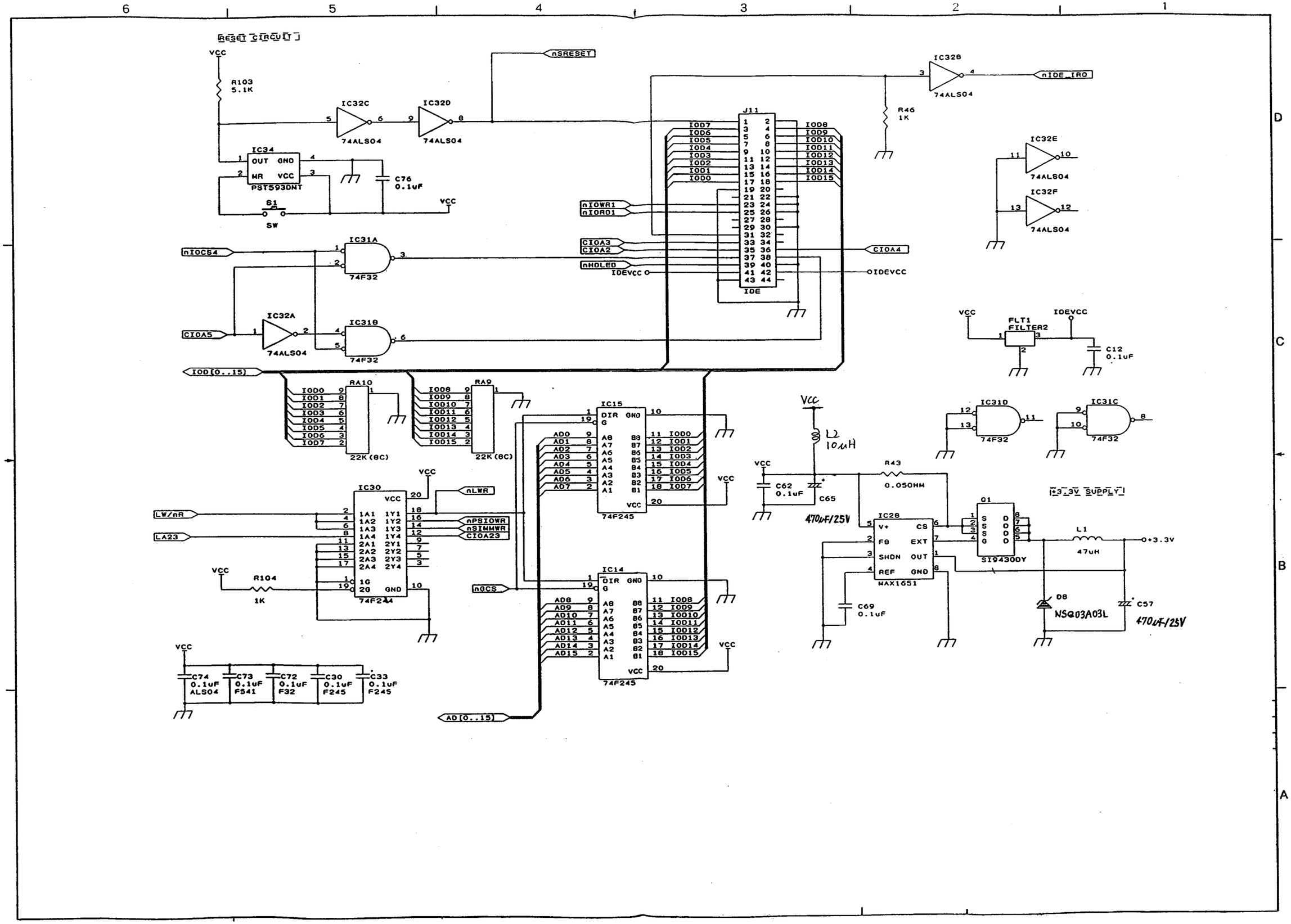

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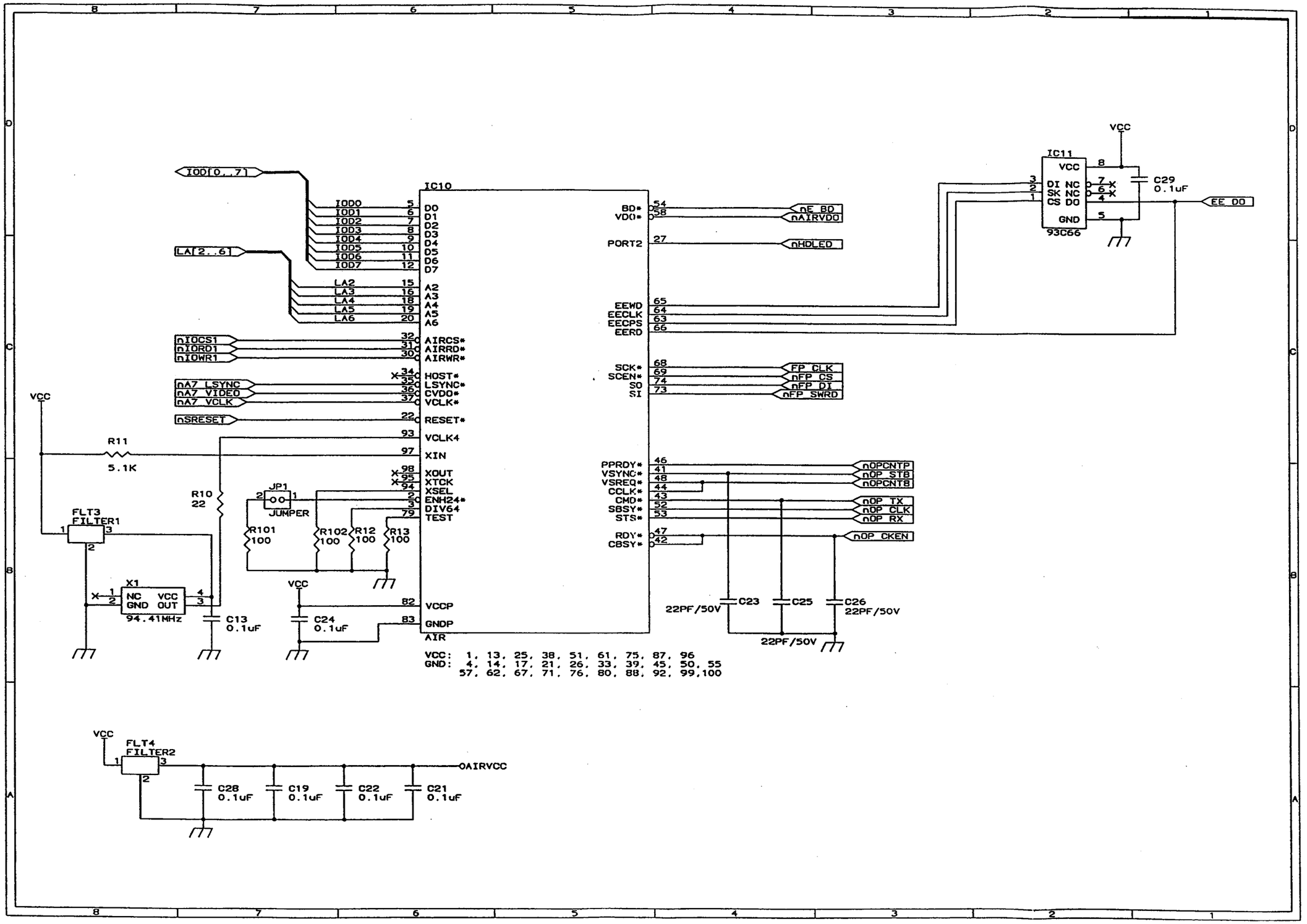

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6-	RG1-3736-00V		1	VIDEO CONTROLLER PCB ASS'Y	100-120V USA ORIG. PARTS(LPS)
C 2	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 3	VC8-5800-476		1	CAPACITOR,47UF, 16V	USA ORIG. PARTS(LPS)
C 4	VC8-7150-477		1	CAPACITOR, 470UF, 25V	USA ORIG. PARTS(LPS)
C 5	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 9	VW4-2234-100		1	CAPACITOR, 680PF, 50V	
C 10	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 11	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 12	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 13	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 14	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 15	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 18	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 19	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 20	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 21	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 22	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 23	VW4-2234-220		1	CAPACITOR, 22PF, 50V	
C 24	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 25	VW4-2234-220		1	CAPACITOR, 22PF, 50V	
C 26	VW4-2234-220		1	CAPACITOR, 22PF, 50V	
C 27	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 28	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 29	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 30	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 31	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 32	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 33	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 34	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 35	VC8-5800-476		1	CAPACITOR,47UF, 16V	USA ORIG. PARTS(LPS)
C 36	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 37	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 38	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 39	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 40	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 41	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 42	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 43	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 44	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 45	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 46	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 47	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 48	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 49	VW4-2234-330		1	CAPACITOR, 33PF, 50V	
C 50	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 51	VW4-2234-330		1	CAPACITOR, 33PF, 50V	
C 52	VW4-2234-330		1	CAPACITOR, 33PF, 50V	
C 53	VW4-2234-100		1	CAPACITOR, 680PF, 50V	
C 54	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6- C 55	VC8-5800-226		1	CAPACITOR, 22UF, 16V	USA ORIG. PARTS(LPS)
C 56	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 57	VC8-7150-477		1	CAPACITOR, 470UF, 25V	USA ORIG. PARTS(LPS)
C 58	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 59	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 60	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 61	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 62	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 63	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 64	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 65	VC8-7150-477		1	CAPACITOR, 470UF, 25V	USA ORIG. PARTS(LPS)
C 66	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 67	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 68	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 69	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 70	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 71	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 72	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 73	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 74	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 75	VC8-5800-476		1	CAPACITOR,47UF, 16V	USA ORIG. PARTS(LPS)
C 76	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 101	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 102	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 103	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 104	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
D 6	WA1-0507-000		1	DIODE, ZENER, MA3068-M	
D 7	WA1-5111-000		1	DIODE, RB400D	
D 8	WA1-6045-00V		1	DIODE, NSQ03A03L	USA ORIG. PARTS(LPS)
IC 4	WA3-5521-00V		1	IC, SN74LS244DB, TTL	USA ORIG. PARTS(LPS)
IC 5	WA3-7303-00V		1	IC, SN74LS541DB, TTL	USA ORIG. PARTS(LPS)
IC 6	WA7-0035-00V		1	IC, SN74ABT240DB, CMOS	USA ORIG. PARTS(LPS)
IC 7	WA7-0037-00V		1	IC, SN74ALS541DB,TTL	USA ORIG. PARTS(LPS)
IC 8	WA3-7302-000		1	IC, SN74LS245DB, TTL	
IC 9	WA7-0037-00V		1	IC, SN74ALS541DB,TTL	USA ORIG. PARTS(LPS)
IC 10	RH4-5360-00V		1	IC, UPD93632GC-7EA, CMOS	USA ORIG. PARTS(LPS)
IC 11	WA3-7213-00V		1	IC, NM93C66M8, EEP-ROM	USA ORIG. PARTS(LPS)
IC 12	WA7-0034-00V		1	IC, IDT74FCT541CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 13	WA7-0033-00V		1	IC, IDT74FCT245CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 14	WA3-8610-00V		1	IC, SN74F245DB,BUS TRANCEIVERS	USA ORIG. PARTS(LPS)
IC 15	WA3-8610-00V		1	IC, SN74F245DB,BUS TRANCEIVERS	USA ORIG. PARTS(LPS)
IC 16	WA7-0033-00V		1	IC, IDT74FCT245CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 17	WA7-0034-00V		1	IC, IDT74FCT541CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 18	WA7-0033-00V		1	IC, IDT74FCT245CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 19	WA7-0034-00V		1	IC, IDT74FCT541CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 20	WA3-7302-000		1	IC, SN74LS245DB, TTL	
IC 21	RH4-5328-000		1	IC, SC414322FT, MPU	
IC 22	WA7-0034-00V		1	IC, IDT74FCT541CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 23	WA7-0033-00V		1	IC, IDT74FCT245CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 24	WA7-0036-00V		1	IC, SN74LS07DB, TTL	USA ORIG. PARTS(LPS)

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6- IC 25	WA3-5516-00V		1	IC, SN74LS14DB, TTL	USA ORIG. PARTS(LPS)
IC 26	WA7-0038-00V		1	IC, SN74F541DB, TTL	USA ORIG. PARTS(LPS)
IC 27	WA7-0038-00V		1	IC, SN74F541DB, TTL	USA ORIG. PARTS(LPS)
IC 28	WA4-6791-00V		1	IC, MAX1651CSA, CMOS	USA ORIG. PARTS(LPS)
IC 29	WA7-0032-00V		1	IC, A80960HD-66, CPU	USA ORIG. PARTS(LPS)
IC 30	WA3-5526-00V		1	IC, SV74F245DB, TTL	USA ORIG. PARTS(LPS)
IC 31	WA3-8609-00V		1	IC, SN74F32DB, TTL	USA ORIG. PARTS(LPS)
IC 32	WA7-0039-00V		1	IC, SN74ALS04BDB, TTL	USA ORIG. PARTS(LPS)
IC 33	WA3-8608-00V		1	IC, NM93C66M8,CMOS	USA ORIG. PARTS(LPS)
IC 34	WA4-6571-000		1	IC, PST593DMT, RESET	
IC101	WA3-8619-00V		1	IC, SN74ALS74ADB, TTL	USA ORIG. PARTS(LPS)
IC102	WA7-0115-00V		1	IC, SM74F157ADB, TTL	USA ORIG. PARTS(LPS)
IC103	WA7-0116-00V		1	IC,SN74ALS174DB, TTL	USA ORIG. PARTS(LPS)
J 1	RH2-5275-000		1	CONNECTOR, 72P	
J 2	RH2-5275-000		1	CONNECTOR, 72P	
J 3	WA9-5232-000		1	SOCKET, IC	
J 4	WA9-5232-000		1	SOCKET, IC	
J 5	WA9-5232-000		1	SOCKET, IC	
J 6	VS1-0528-048		1	CONNECTOR, 48P	
J 7	VS3-5047-020		1	CONNECTOR, 20P	USA ORIG. PARTS(LPS)
J 8	VS1-5710-036		1	CONNECTOR, 36P	
J 9	RH2-5292-00V		1	COECTOR, 50P	USA ORIG. PARTS(LPS)
J 10	WS1-5594-00V		1	CONNCTOR, 50P	USA ORIG. PARTS(LPS)
J 11	WS1-5509-000		1	CONNECTOR, 44P	
JP 1	VS1-0491-002		1	CONNECTOR, 2P	USA ORIG. PARTS(LPS)
L 1	VL7-1970-470		1	INDUCTOR	USA ORIG. PARTS(LPS)
L 2	VL7-1970-100		1	INDUCTOR	
Q 1	WA2-5858-00V		1	FET, SI9430DY	USA ORIG. PARTS(LPS)
R 6	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 7	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 8	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 9	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 10	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 11	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 12	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 13	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 16	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 17	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 18	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 20	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 21	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 23	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 24	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 25	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 26	VV1-7188-222		1	RESISTOR, 2.2KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 27	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 28	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 29	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 30	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 31	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6- R 32	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 33	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 34	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 35	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 36	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 37	VV1-7188-680		1	RESISTOR ARRAY, 68 OHM, 1/4W	USA ORIG. PARTS(LPS)
R 38	VV1-7188-221		1	RESISTOR ARRAY, 220 OHM, 1/4W	
R 39	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 40	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 41	VV1-6148-101		1	REGISTOR, 100 OHM, 1/4W	USA ORIG. PARTS(LPS)
R 42	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 43	VR9-5464-000		1	RESISTOR, 0.05 OHM, 1W	USA ORIG. PARTS(LPS)
R 45	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 46	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 47	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 48	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 101	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 102	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 103	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 104	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
RA 1	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	
RA 2	VR7-5850-103		1	RESISTOR, 10KOHM, 0.063W	USA ORIG. PARTS(LPS)
RA 3	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 4	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 5	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 6	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 7	VR7-7230-102		1	RESISTOR ARRAY, 1KOHM, 0.63W	USA ORIG. PARTS(LPS)
RA 8	VR7-7230-102		1	RESISTOR ARRAY, 1KOHM, 0.63W	USA ORIG. PARTS(LPS)
RA 9	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 10	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 11	VR7-5850-103		1	RESISTOR, 10KOHM, 0.063W	USA ORIG. PARTS(LPS)
RA 12	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	
RA 13	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 14	VR7-7230-101		1	RESISTOR ARRAY,100 OHM,0.063W	
RA 15	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 16	VR7-5850-102		1	RESISTOR, 1KOHM, 0.063W	
RA 17	VR7-7230-101		1	RESISTOR ARRAY,100 OHM,0.063W	
RA 18	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 19	VR7-5850-103		1	RESISTOR, 10KOHM, 0.063W	USA ORIG. PARTS(LPS)
RA 20	VR7-7230-222		1	RESISTOR ARRAY, 2.2KOHM,0.063W	USA ORIG. PARTS(LPS)
RA 21	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 22	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 23	VR7-7230-102		1	RESISTOR ARRAY, 1KOHM, 0.63W	USA ORIG. PARTS(LPS)
RA 24	VR7-5850-103		1	RESISTOR, 10KOHM, 0.063W	USA ORIG. PARTS(LPS)
RA 25	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 26	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 27	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 28	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 29	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 30	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6- RA 31	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 32	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	
RA 33	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 34	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	
X 1	RH6-3731-00V		1	OSCILLATOR, CRYSTAL	USA ORIG. PARTS(LPS)
X 3	WK2-5767-00V		1	OSCILLATOR, CRYSTAL	USA ORIG. PARTS(LPS)

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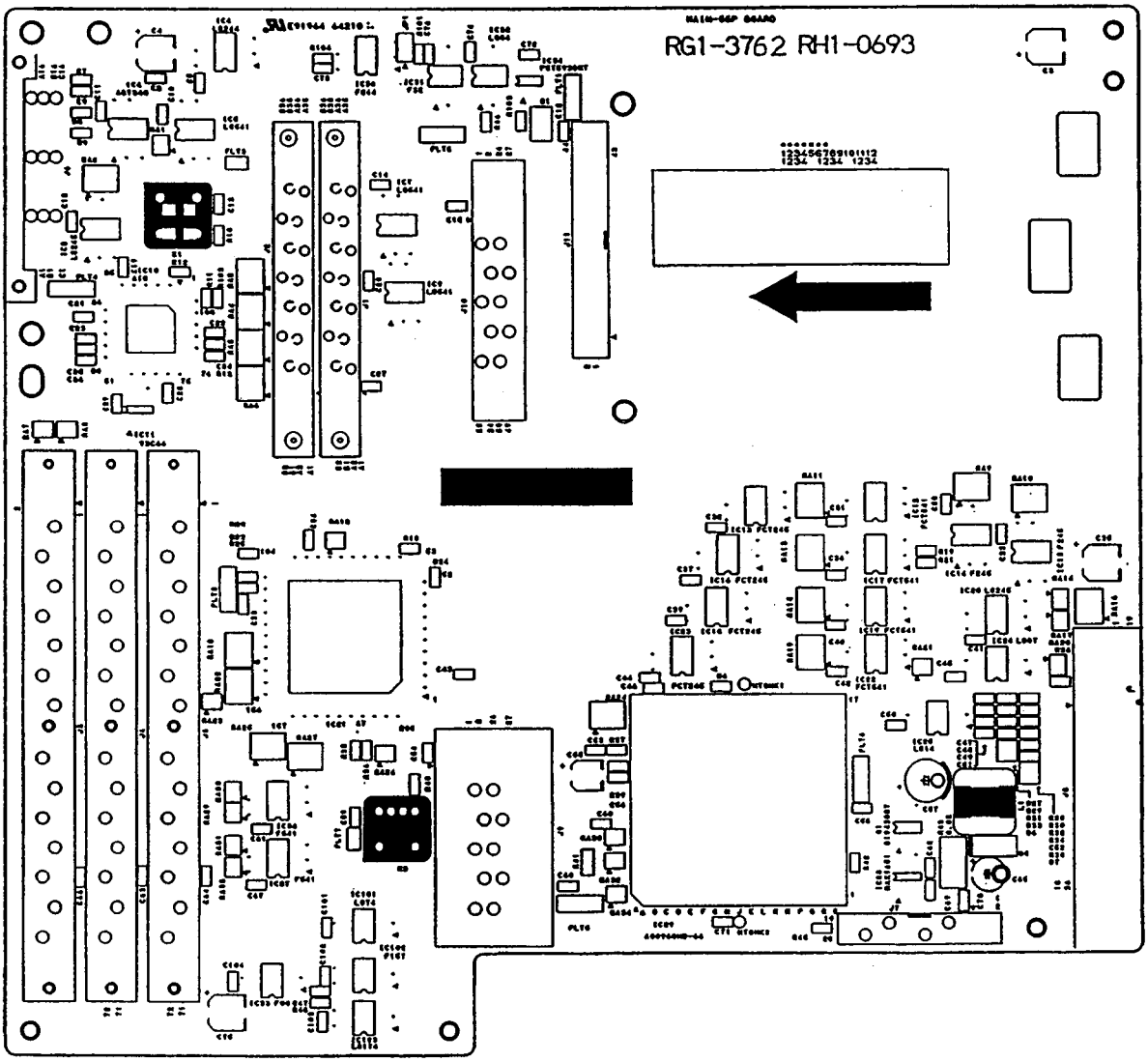
FIGURE CD 6A

VIDEO CONTROLLER PCB ASS'Y (220-240V)



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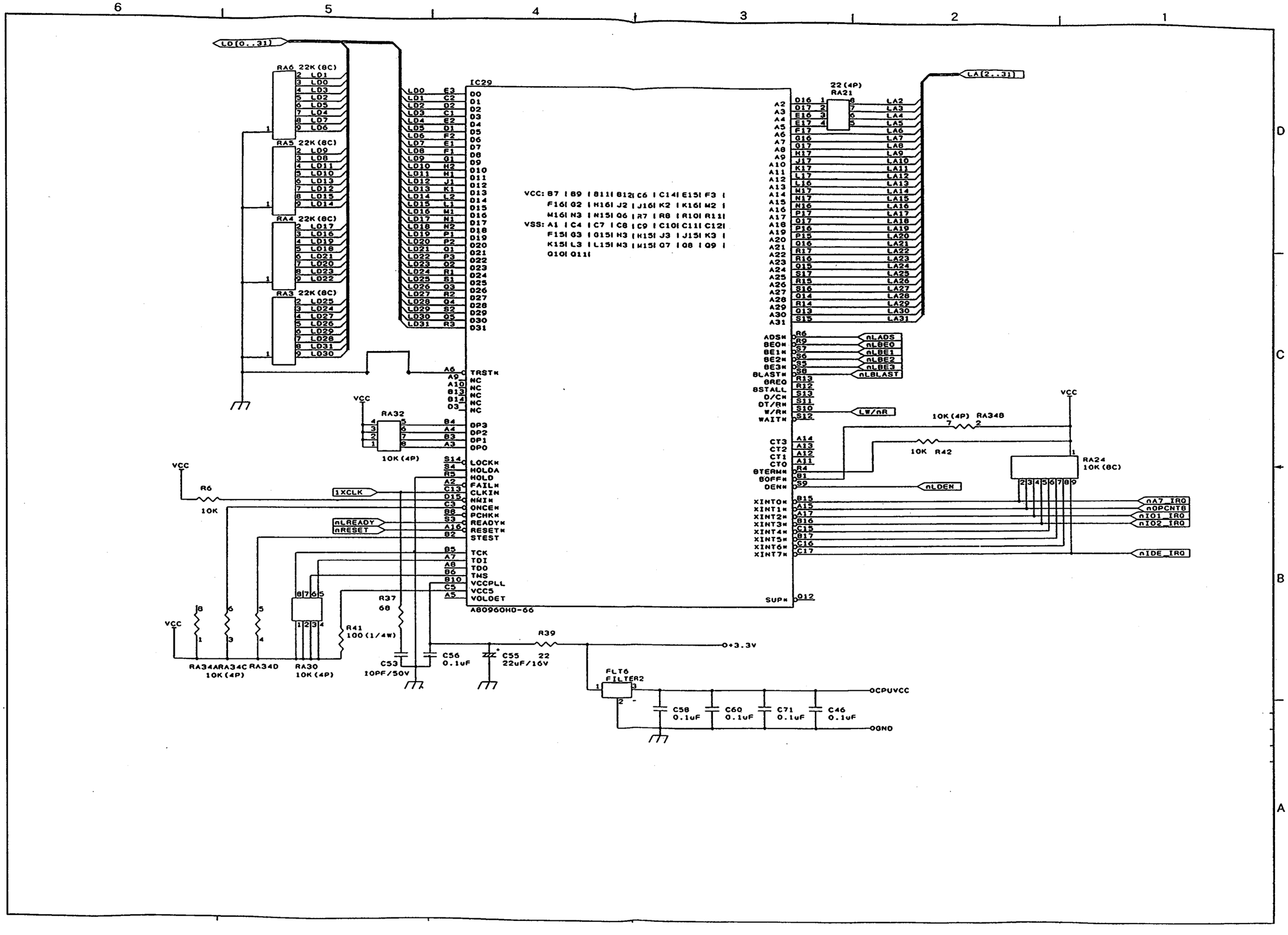

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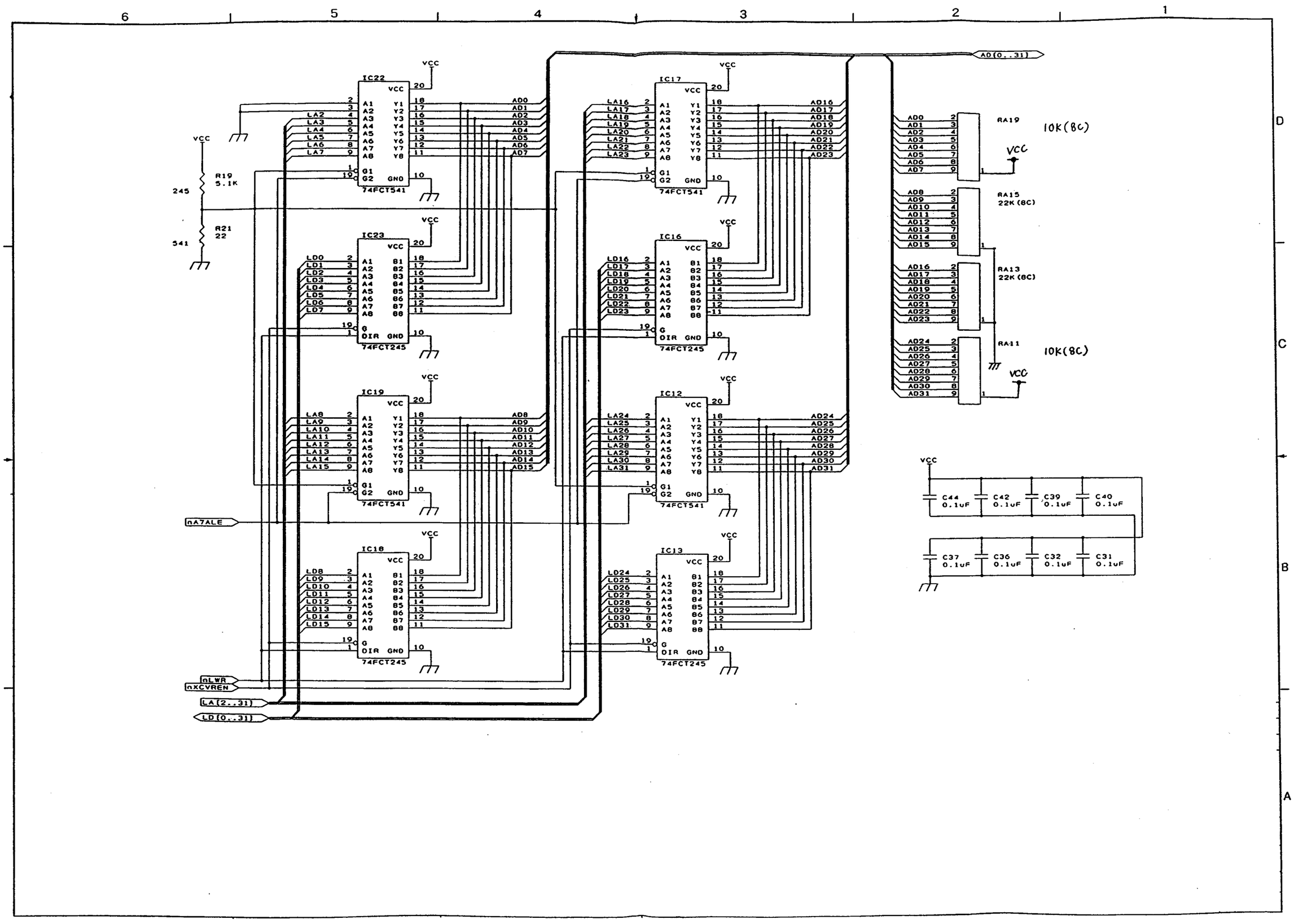

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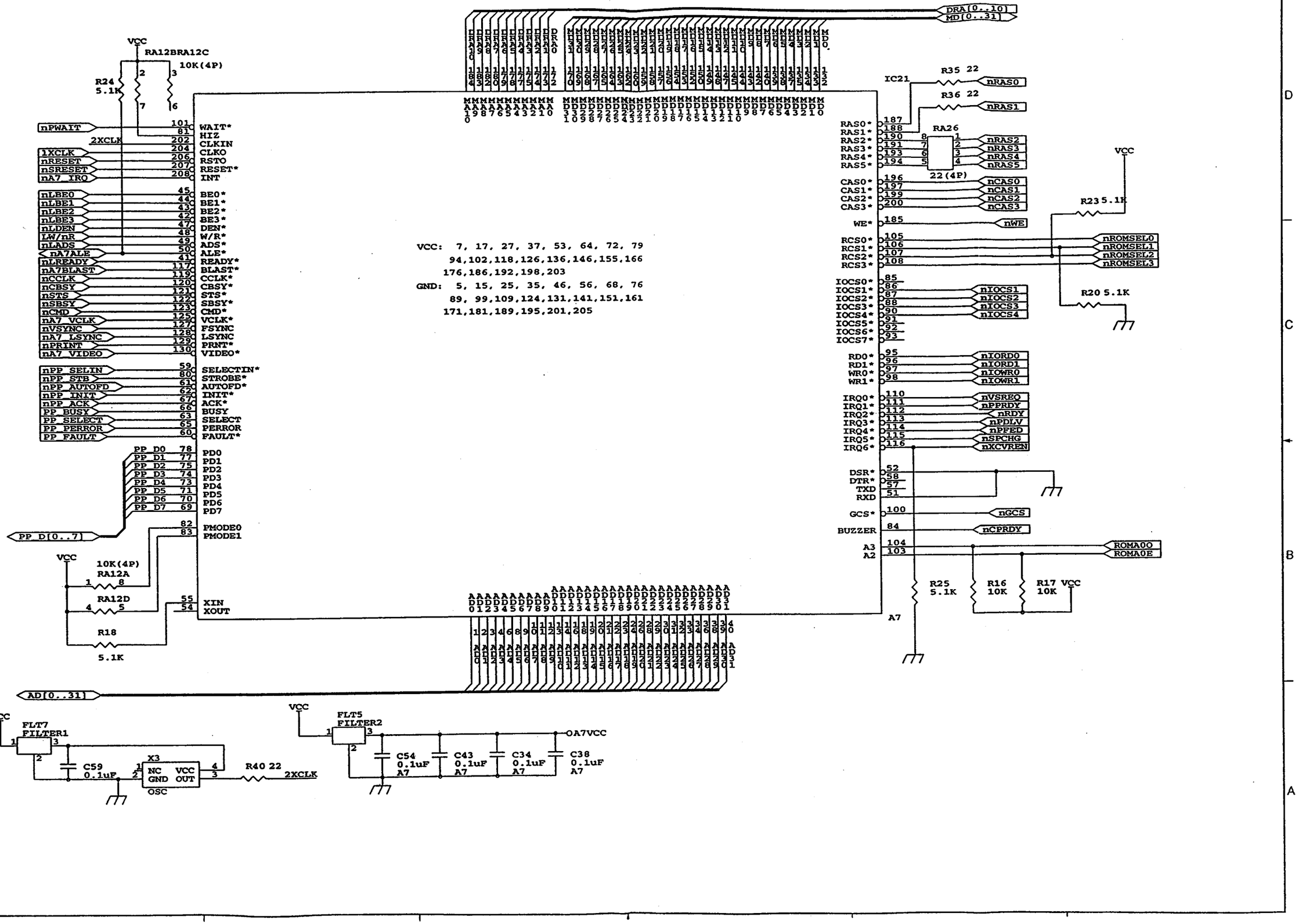

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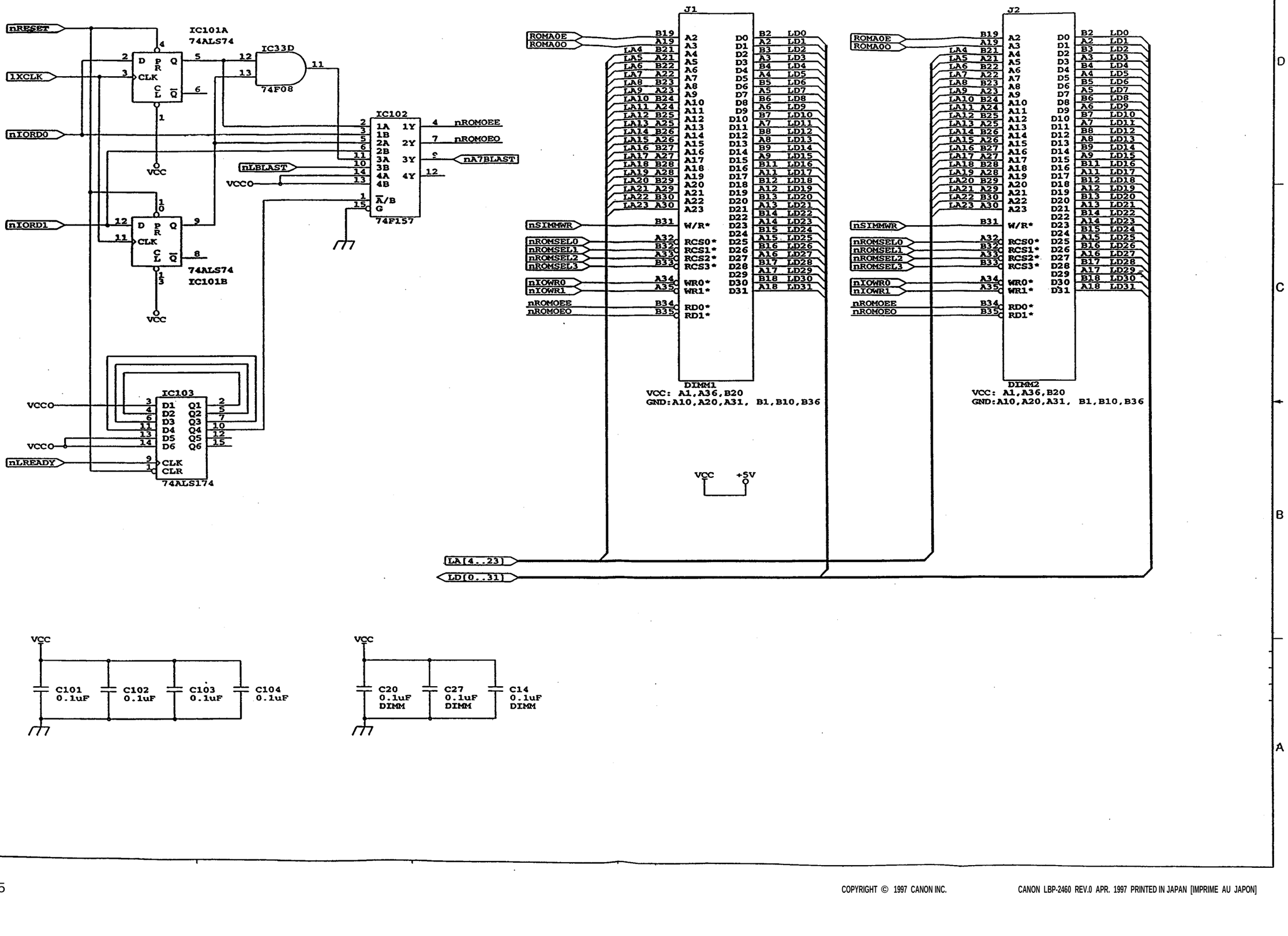

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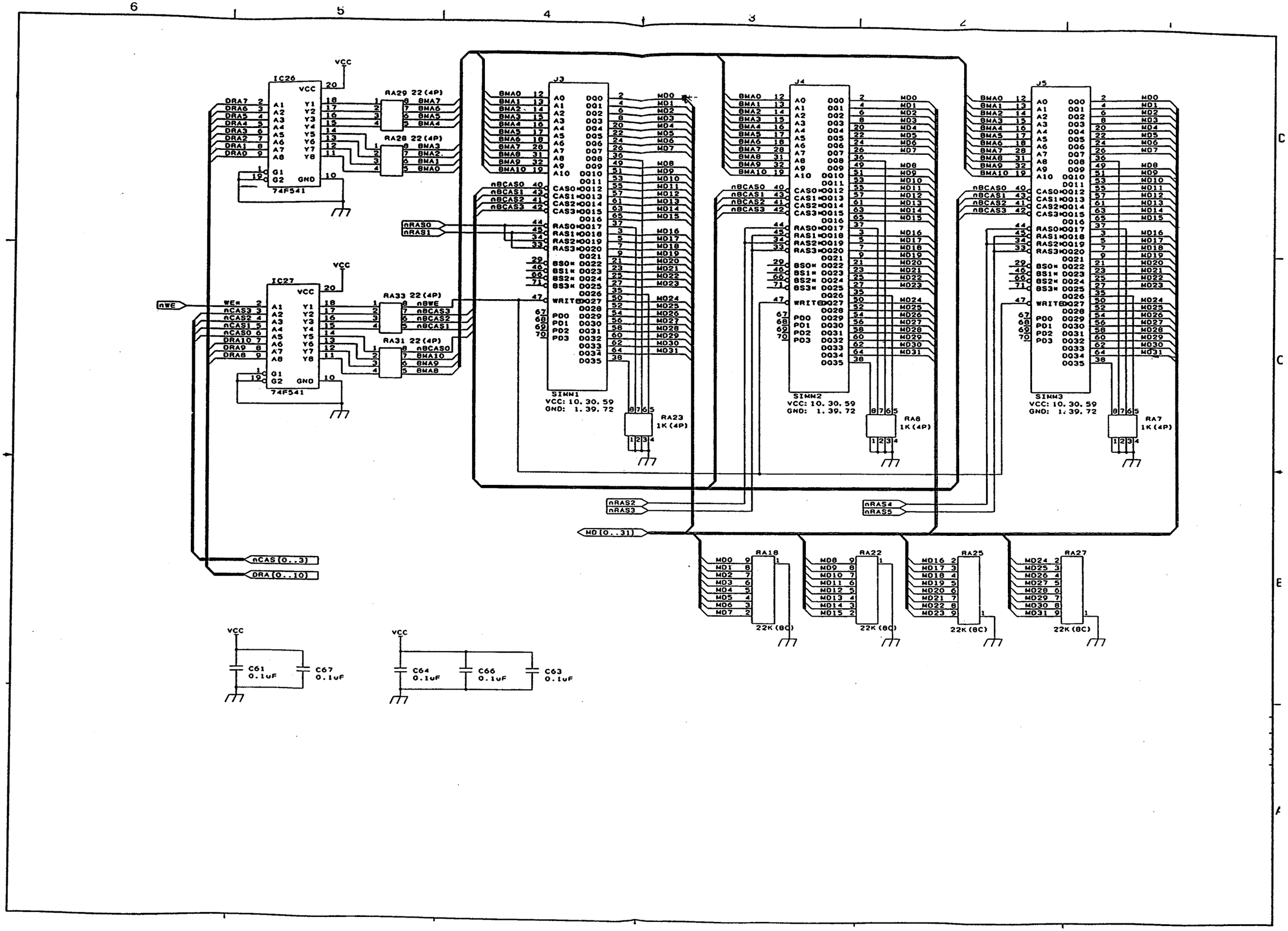

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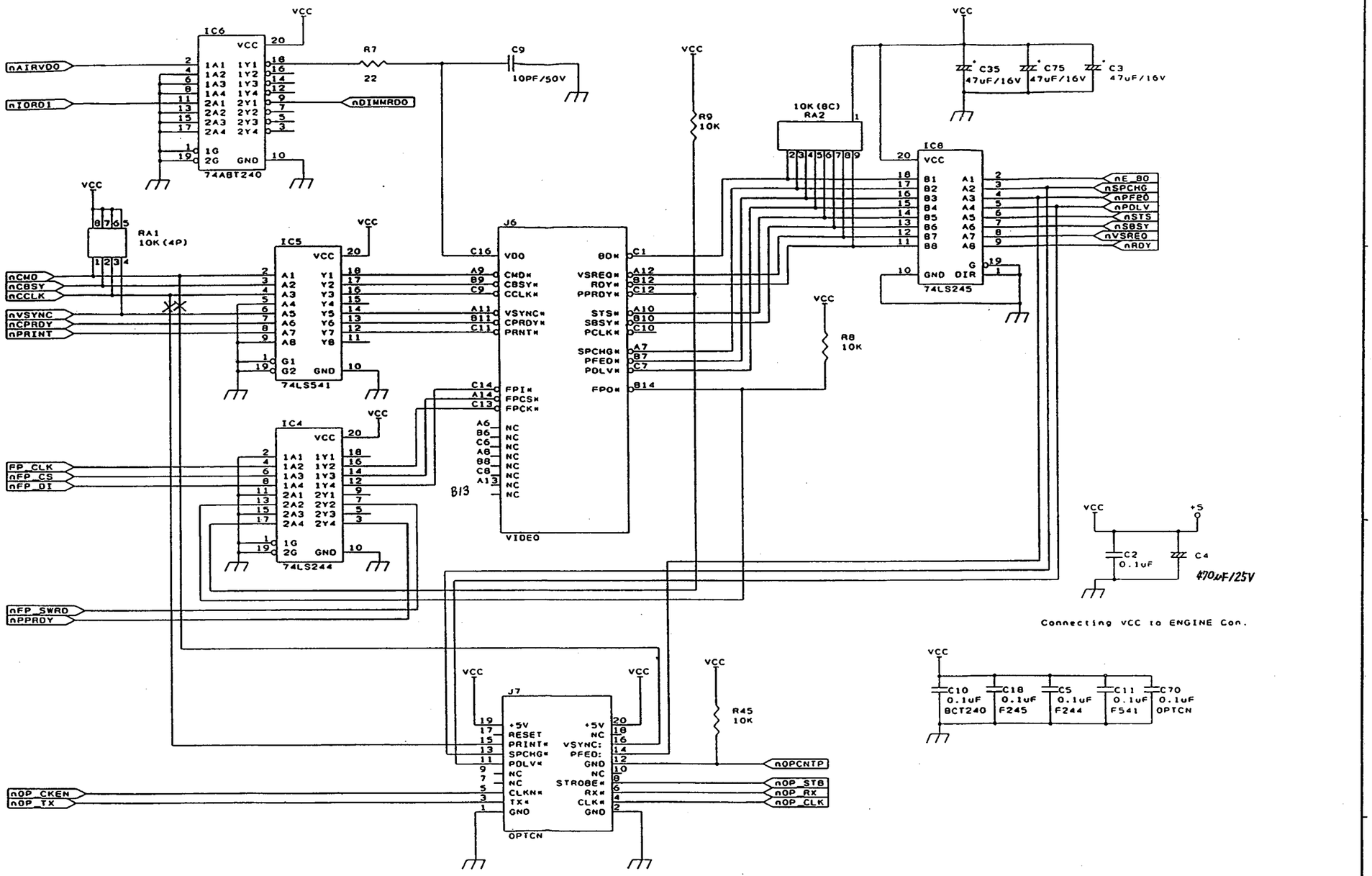

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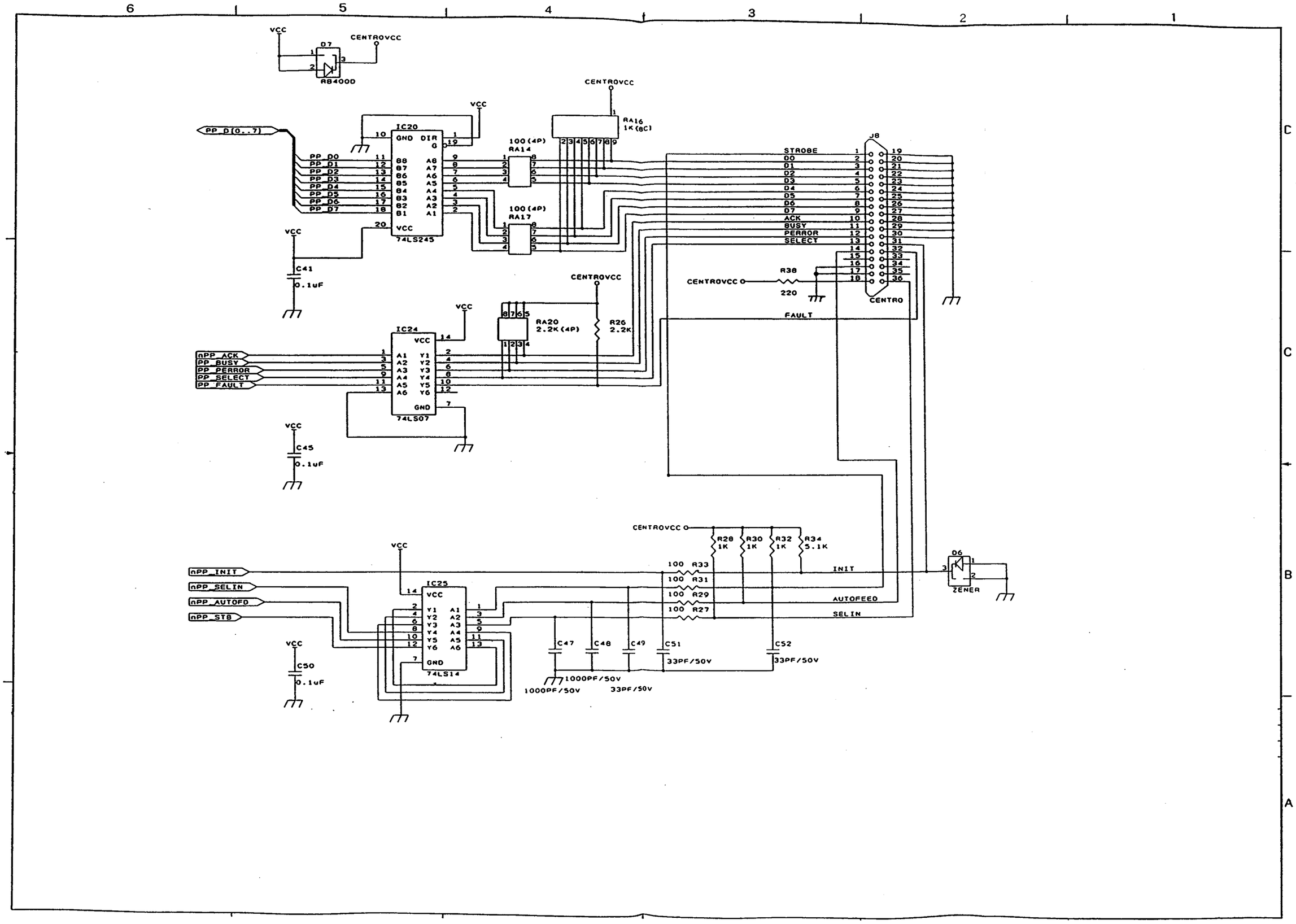

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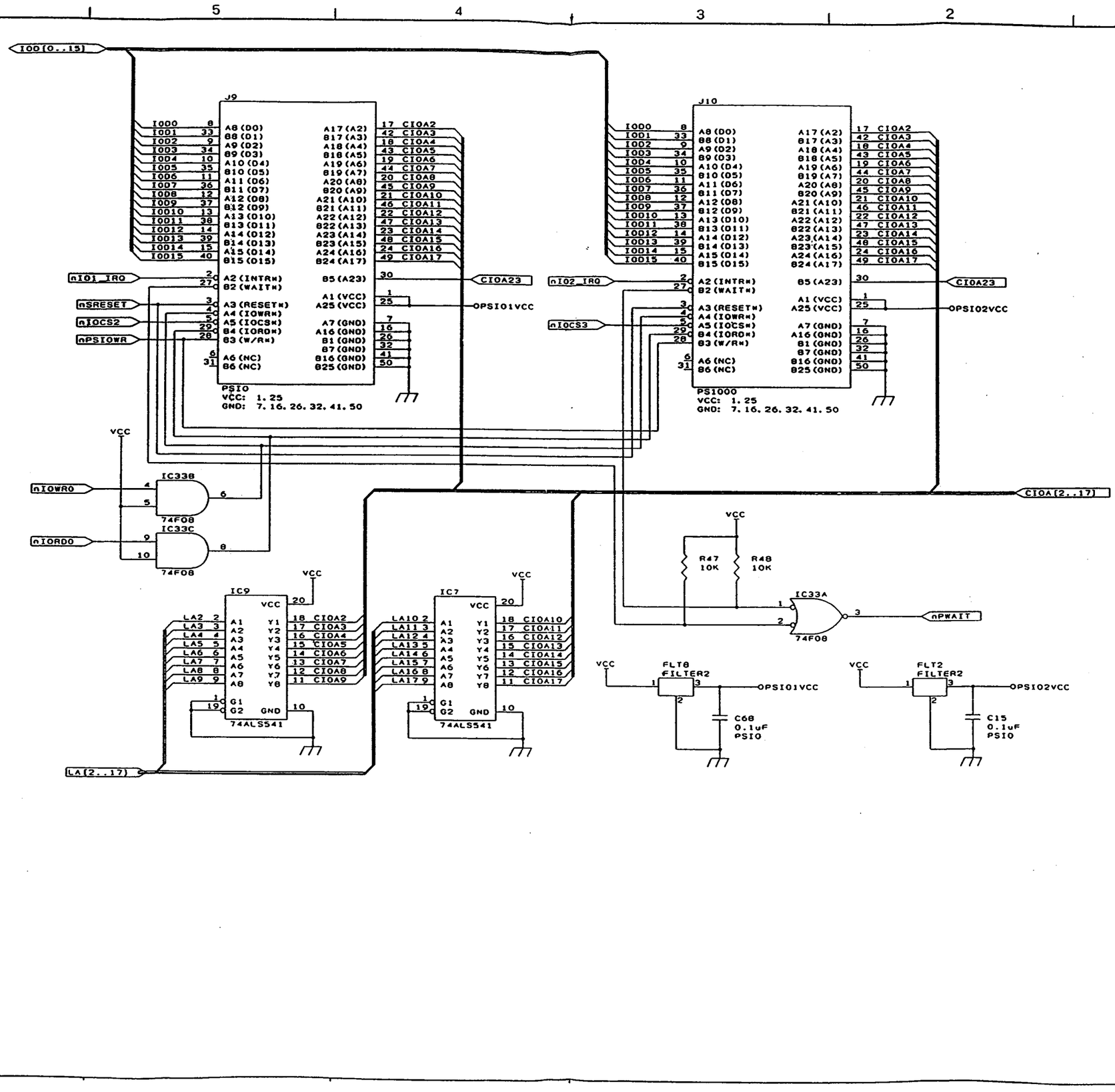

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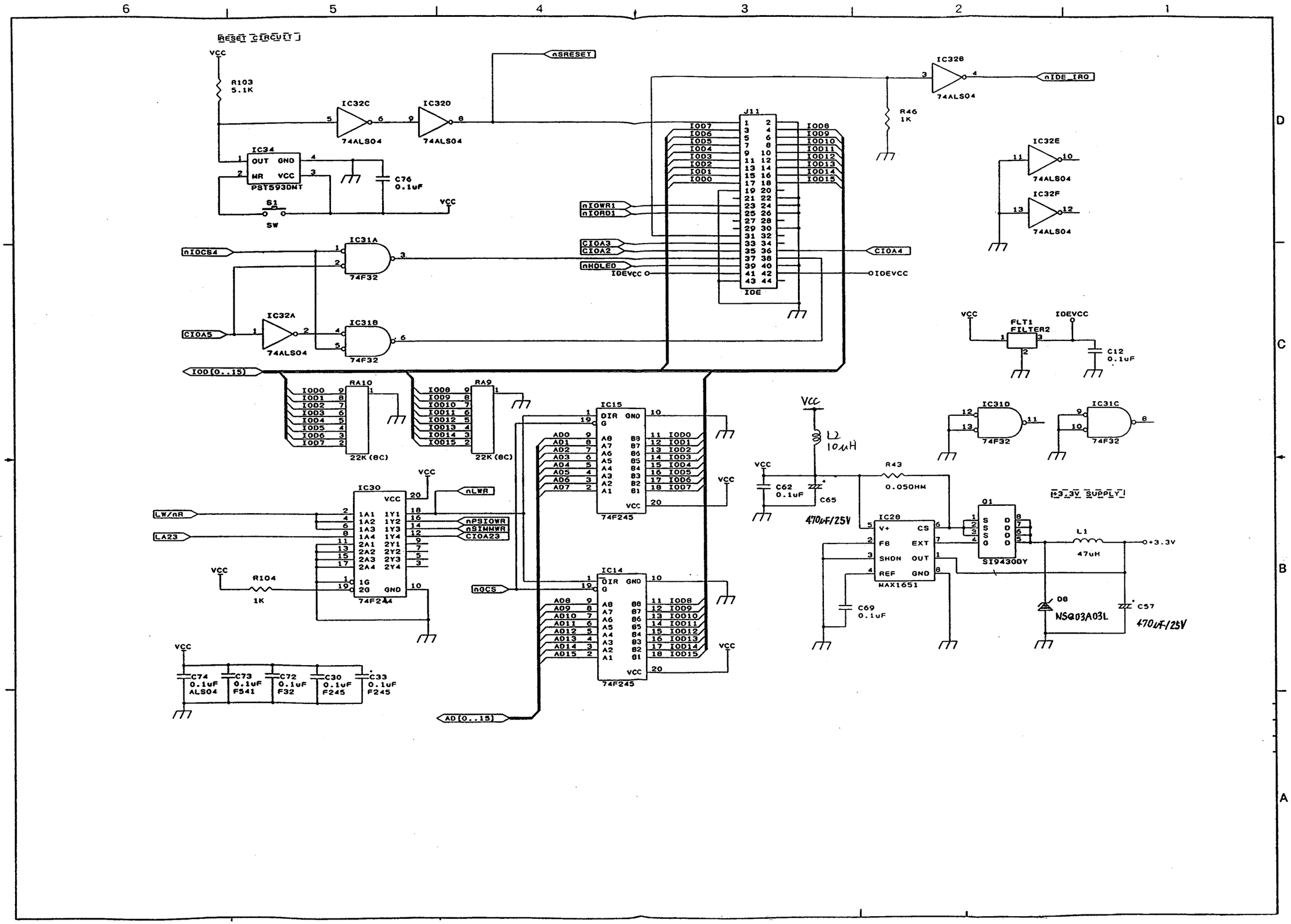

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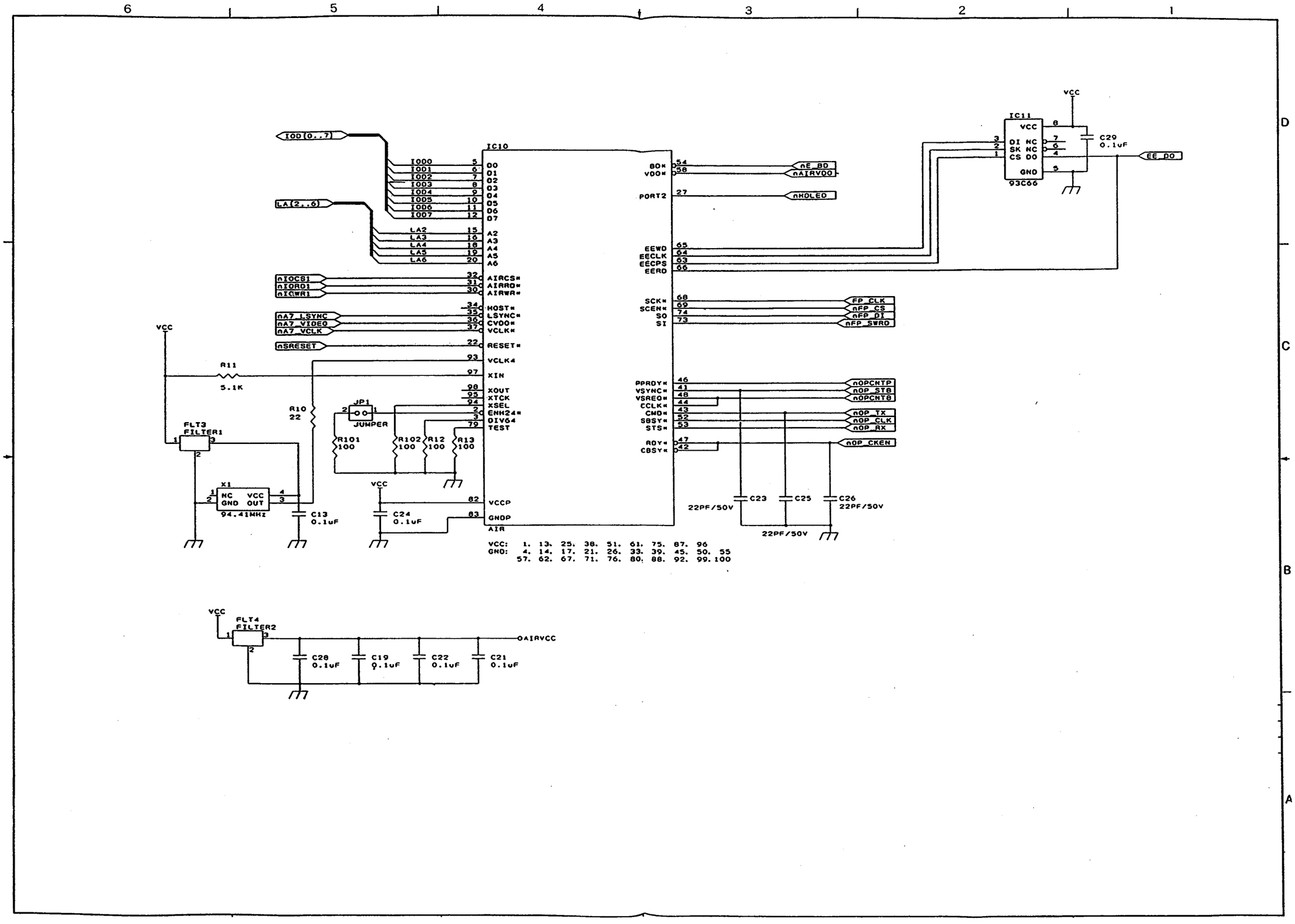

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6A-	RG1-3762-00V		1	VIDEO CONTROLLER PCB ASS'Y	220-240V
					USA ORIG. PARTS(LPS)
C 2	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 3	VC8-5800-476		1	CAPACITOR,47UF, 16V	USA ORIG. PARTS(LPS)
C 4	VC8-7150-477		1	CAPACITOR, 470UF, 25V	USA ORIG. PARTS(LPS)
C 5	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 9	VW4-2234-100		1	CAPACITOR, 680PF, 50V	
C 10	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 11	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 12	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 13	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 14	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 15	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 18	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 19	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 20	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 21	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 22	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 23	VW4-2234-220		1	CAPACITOR, 22PF, 50V	
C 24	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 25	VW4-2234-220		1	CAPACITOR, 22PF, 50V	
C 26	VW4-2234-220		1	CAPACITOR, 22PF, 50V	
C 27	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 28	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 29	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 30	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 31	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 32	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 33	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 34	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 35	VC8-5800-476		1	CAPACITOR,47UF, 16V	USA ORIG. PARTS(LPS)
C 36	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 37	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 38	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 39	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 40	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 41	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 42	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 43	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 44	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 45	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 46	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 47	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 48	VW4-2234-102		1	CAPACITOR, 1000PF, 50V	
C 49	VW4-2234-330		1	CAPACITOR, 33PF, 50V	
C 50	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 51	VW4-2234-330		1	CAPACITOR, 33PF, 50V	
C 52	VW4-2234-330		1	CAPACITOR, 33PF, 50V	
C 53	VW4-2234-100		1	CAPACITOR, 680PF, 50V	
C 54	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6A- C 55	VC8-5800-226		1	CAPACITOR, 22UF, 16V	USA ORIG. PARTS(LPS)
C 56	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 57	VC8-7150-477		1	CAPACITOR, 470UF, 25V	USA ORIG. PARTS(LPS)
C 58	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 59	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 60	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 61	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 62	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 63	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 64	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 65	VC8-7150-477		1	CAPACITOR, 470UF, 25V	USA ORIG. PARTS(LPS)
C 66	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 67	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 68	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 69	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 70	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 71	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 72	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 73	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 74	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 75	VC8-5800-476		1	CAPACITOR,47UF, 16V	USA ORIG. PARTS(LPS)
C 76	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 101	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 102	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 103	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
C 104	VW4-2027-104		1	CAPACITOR, 0.1UF, 25V	
D 6	WA1-0507-000		1	DIODE, ZENER, MA3068-M	
D 7	WA1-5111-000		1	DIODE, RB400D	
D 8	WA1-6045-00V		1	DIODE, NSQ03A03L	USA ORIG. PARTS(LPS)
IC 4	WA3-5521-00V		1	IC, SN74LS244DB, TTL	USA ORIG. PARTS(LPS)
IC 5	WA3-7303-00V		1	IC, SN74LS541DB, TTL	USA ORIG. PARTS(LPS)
IC 6	WA7-0035-00V		1	IC, SN74ABT240DB, CMOS	USA ORIG. PARTS(LPS)
IC 7	WA7-0037-00V		1	IC, SN74ALS541DB,TTL	USA ORIG. PARTS(LPS)
IC 8	WA3-7302-000		1	IC, SN74LS245DB, TTL	
IC 9	WA7-0037-00V		1	IC, SN74ALS541DB,TTL	USA ORIG. PARTS(LPS)
IC 10	RH4-5360-00V		1	IC, UPD93632GC-7EA, CMOS	USA ORIG. PARTS(LPS)
IC 11	WA3-7213-00V		1	IC, NM93C66M8, EEP-ROM	USA ORIG. PARTS(LPS)
IC 12	WA7-0034-00V		1	IC, IDT74FCT541CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 13	WA7-0033-00V		1	IC, IDT74FCT245CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 14	WA3-8610-00V		1	IC, SN74F245DB,BUS TRANCEIVERS	USA ORIG. PARTS(LPS)
IC 15	WA3-8610-00V		1	IC, SN74F245DB,BUS TRANCEIVERS	USA ORIG. PRATS(LPS)
IC 16	WA7-0033-00V		1	IC, IDT74FCT245CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 17	WA7-0034-00V		1	IC, IDT74FCT541CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 18	WA7-0033-00V		1	IC, IDT74FCT245CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 19	WA7-0034-00V		1	IC, IDT74FCT541CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 20	WA3-7302-000		1	IC, SN74LS245DB, TTL	
IC 21	RH4-5328-000		1	IC, SC414322FT, MPU	
IC 22	WA7-0034-00V		1	IC, IDT74FCT541CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 23	WA7-0033-00V		1	IC, IDT74FCT245CTPY, CMOS	USA ORIG. PARTS(LPS)
IC 24	WA7-0036-00V		1	IC, SN74LS07DB, TTL	USA ORIG. PARTS(LPS)

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6A- IC 25	WA3-5516-00V		1	IC, SN74LS14DB, TTL	USA ORIG. PARTS(LPS)
IC 26	WA7-0038-00V		1	IC, SN74F541DB, TTL	USA ORIG. PARTS(LPS)
IC 27	WA7-0038-00V		1	IC, SN74F541DB, TTL	USA ORIG. PARTS(LPS)
IC 28	WA4-6791-00V		1	IC, MAX1651CSA, CMOS	USA ORIG. PARTS(LPS)
IC 29	WA7-0032-00V		1	IC, A80960HD-66, CPU	USA ORIG. PARTS(LPS)
IC 30	WA3-5526-00V		1	IC, SV74F245DB, TTL	USA ORIG. PARTS(LPS)
IC 31	WA3-8609-00V		1	IC, SN74F32DB, TTL	USA ORIG. PARTS(LPS)
IC 32	WA7-0039-00V		1	IC, SN74ALS04BDB, TTL	USA ORIG. PARTS(LPS)
IC 33	WA3-8608-00V		1	IC, NM93C66M8,CMOS	USA ORIG. PARTS(LPS)
IC 34	WA4-6571-000		1	IC, PST593DMT, RESET	
IC101	WA3-8619-00V		1	IC, SN74ALS74ADB, TTL	USA ORIG. PARTS(LPS)
IC102	WA7-0115-00V		1	IC, SM74F157ADB, TTL	USA ORIG. PARTS(LPS)
IC103	WA7-0116-00V		1	IC,SN74ALS174DB, TTL	USA ORIG. PARTS(LPS)
J 1	RH2-5275-000		1	CONNECTOR, 72P	
J 2	RH2-5275-000		1	CONNECTOR, 72P	
J 3	WA9-5232-000		1	SOCKET, IC	
J 4	WA9-5232-000		1	SOCKET, IC	
J 5	WA9-5232-000		1	SOCKET, IC	
J 6	VS1-0528-048		1	CONNECTOR, 48P	
J 7	VS3-5047-020		1	CONNECTOR, 20P	USA ORIG. PARTS(LPS)
J 8	VS1-5710-036		1	CONNECTOR, 36P	
J 9	RH2-5292-00V		1	COECTOR, 50P	USA ORIG. PARTS(LPS)
J 10	WS1-5594-00V		1	CONNCTOR, 50P	USA ORIG. PARTS(LPS)
J 11	WS1-5509-000		1	CONNECTOR, 44P	
JP 1	VS1-0491-002		1	CONNECTOR, 2P	USA ORIG. PARTS(LPS)
L 1	VL7-1970-470		1	INDUCTOR	USA ORIG. PARTS(LPS)
L 2	VL7-1970-100		1	INDUCTOR	
Q 1	WA2-5858-00V		1	FET, SI9430DY	USA ORIG. PARTS(LPS)
R 6	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 7	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 8	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 9	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 10	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 11	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 12	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 13	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 16	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 17	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 18	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 20	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 21	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 23	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 24	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 25	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 26	VV1-7188-222		1	RESISTOR, 2.2KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 27	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 28	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 29	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 30	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 31	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6A- R 32	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 33	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 34	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 35	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 36	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 37	VV1-7188-680		1	RESISTOR ARRAY, 68 OHM, 1/4W	USA ORIG. PARTS(LPS)
R 38	VV1-7188-221		1	RESISTOR ARRAY, 220 OHM, 1/4W	
R 39	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 40	VV1-7188-220		1	RESISTOR ARRAY, 22 OHM, 1/8W	
R 41	VV1-6148-101		1	REGISTOR, 100 OHM, 1/4W	USA ORIG. PARTS(LPS)
R 42	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 43	VR9-5464-000		1	RESISTOR, 0.05 OHM, 1W	USA ORIG. PARTS(LPS)
R 45	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 46	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 47	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 48	VV1-7188-103		1	RESISTOR ARRAY, 10KOHM, 1/8W	USA ORIG. PARTS(LPS)
R 101	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 102	VV1-7188-101		1	RESISTOR, 100 OHM, 1/8W	USA ORIG. PARTS(LPS)
R 103	VV1-7188-512		1	RESISTOR ARRAY, 5.1KOHM, 1/4W	USA ORIG. PARTS(LPS)
R 104	VV1-7188-102		1	RESISTOR, 1KOHM, 1/8W	USA ORIG. PARTS(LPS)
RA 1	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	
RA 2	VR7-5850-103		1	RESISTOR, 10KOHM, 0.063W	USA ORIG. PARTS(LPS)
RA 3	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 4	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 5	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 6	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 7	VR7-7230-102		1	RESISTOR ARRAY, 1KOHM, 0.63W	USA ORIG. PARTS(LPS)
RA 8	VR7-7230-102		1	RESISTOR ARRAY, 1KOHM, 0.63W	USA ORIG. PARTS(LPS)
RA 9	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 10	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 11	VR7-5850-103		1	RESISTOR, 10KOHM, 0.063W	USA ORIG. PARTS(LPS)
RA 12	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	
RA 13	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 14	VR7-7230-101		1	RESISTOR ARRAY,100 OHM,0.063W	
RA 15	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 16	VR7-5850-102		1	RESISTOR, 1KOHM, 0.063W	
RA 17	VR7-7230-101		1	RESISTOR ARRAY,100 OHM,0.063W	
RA 18	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 19	VR7-5850-103		1	RESISTOR, 10KOHM, 0.063W	USA ORIG. PARTS(LPS)
RA 20	VR7-7230-222		1	RESISTOR ARRAY, 2.2KOHM,0.063W	USA ORIG. PARTS(LPS)
RA 21	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 22	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 23	VR7-7230-102		1	RESISTOR ARRAY, 1KOHM, 0.63W	USA ORIG. PARTS(LPS)
RA 24	VR7-5850-103		1	RESISTOR, 10KOHM, 0.063W	USA ORIG. PARTS(LPS)
RA 25	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 26	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 27	VR7-5850-223		1	RESISTOR ARRAY, 22KOHM, 0.063W	
RA 28	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 29	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 30	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CD 6A- RA 31	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 32	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	
RA 33	VR7-7230-220		1	RESISTOR ARRAY, 22 OHM, 0.063W	
RA 34	VR7-7230-103		1	RESISTOR ARRAY, 10KOHM, 0.032W	
X 1	RH6-3731-00V		1	OSCILLATOR, CRYSTAL	USA ORIG. PARTS(LPS)
X 3	WK2-5767-00V		1	OSCILLATOR, CRYSTAL	USA ORIG. PARTS(LPS)

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DUPLEX UNIT

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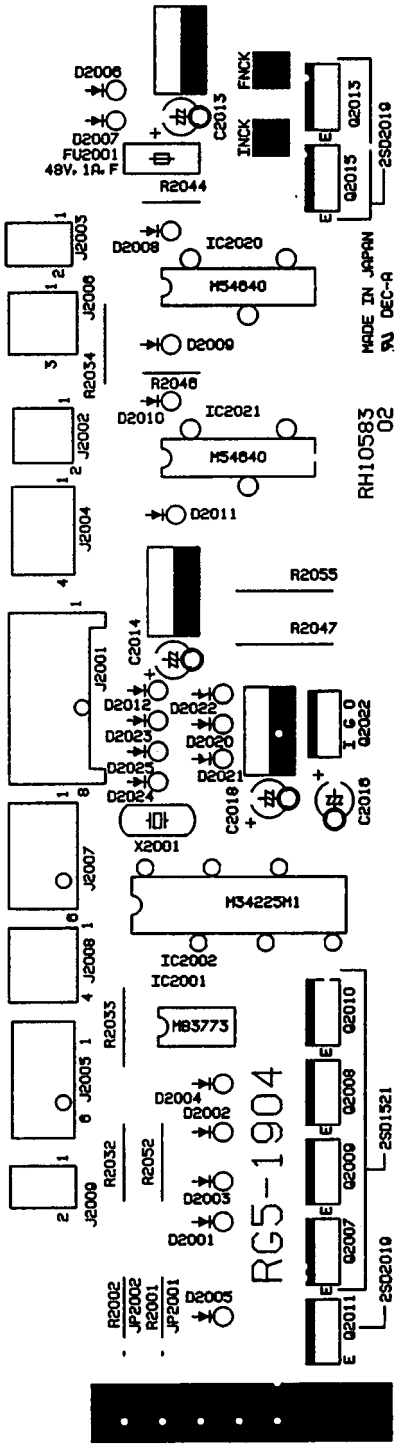
FIGURE CDD1 DUPLEXING DRIVER PCB ASS'Y



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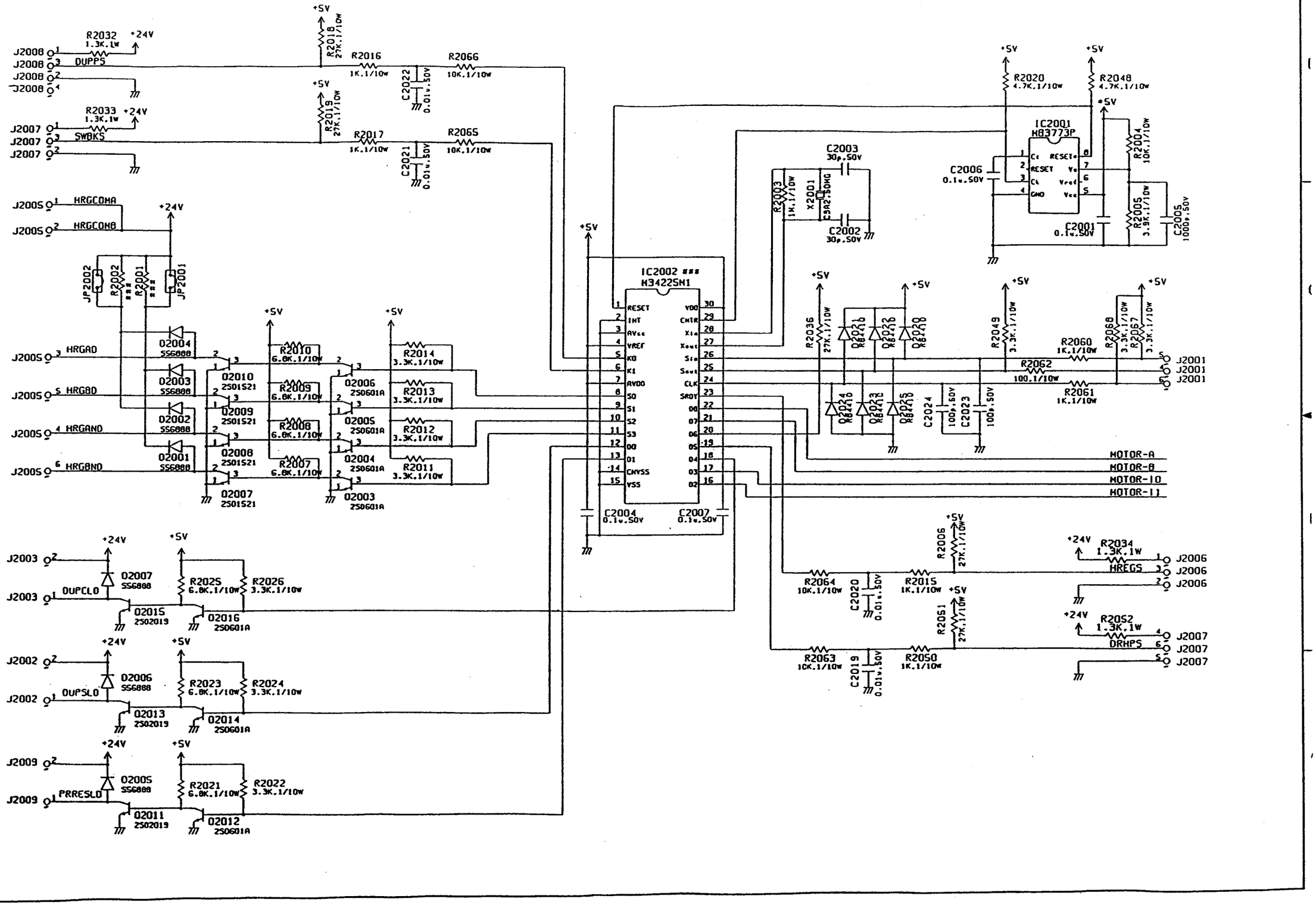

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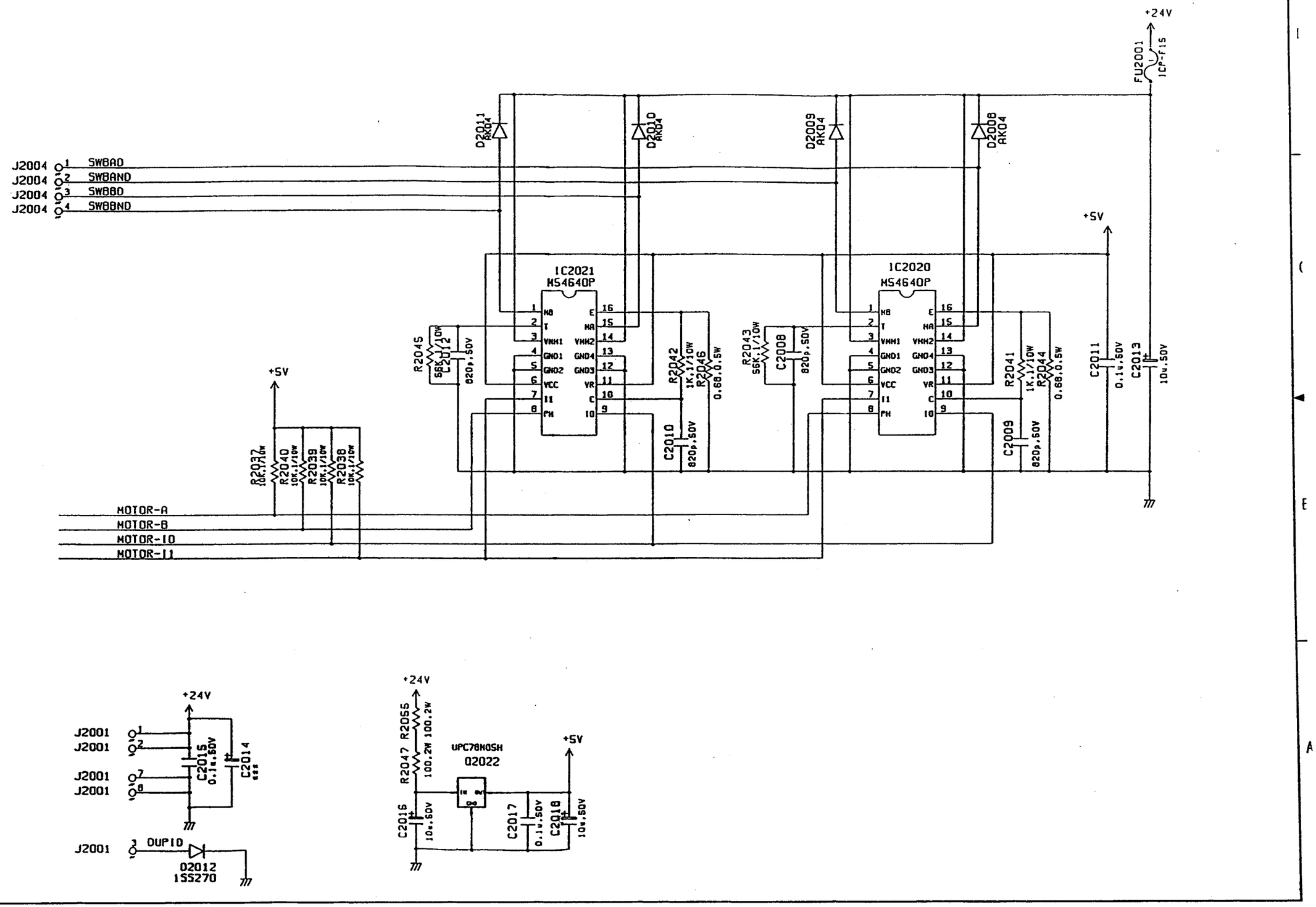

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDD1-	RG5-1904-050		1	DUPLEXING DRIVER PCB ASS'Y	
C2001	VC5-8040-104		1	CAPACITOR, 0.1UF, 50V	
C2002	VW4-2635-300		1	CAPACITOR, 30PF, 50V	
C2003	VW4-2635-300		1	CAPACITOR, 30PF, 50V	
C2004	VC5-8040-104		1	CAPACITOR, 0.1UF, 50V	
C2005	VW4-2634-102		1	CAPACITOR, 1000PF, 25V	
C2006	VC5-8040-104		1	CAPACITOR, 0.1UF, 50V	
C2007	VC5-8040-104		1	CAPACITOR, 0.1UF, 50V	
C2008	VW4-2234-821		1	CAPACITOR, 820PF, 50V	
C2009	VW4-2234-821		1	CAPACITOR, 820PF, 50V	
C2010	VW4-2234-821		1	CAPACITOR, 820PF, 50V	
C2011	VC5-8040-104		1	CAPACITOR, 0.1UF, 50V	
C2012	VW4-2234-821		1	CAPACITOR, 820PF, 50V	
C2013	VC8-3040-106		1	CAPACITOR, 10UF, 50V	
C2015	VC5-8040-104		1	CAPACITOR, 0.1UF, 50V	
C2016	VC8-3040-106		1	CAPACITOR, 10UF, 50V	
C2017	VC5-8040-104		1	CAPACITOR, 0.1UF, 50V	
C2018	VC8-3040-106		1	CAPACITOR, 10UF, 50V	
C2019	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C2020	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C2021	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C2022	VW4-2835-103		1	CAPACITOR, 0.01UF, 50V	
C2023	VW4-2835-101		1	CAPACETOR, 100PF, 50V	
C2024	VW4-2835-101		1	CAPACETOR, 100PF, 50V	
D2001	WA1-0972-000		1	DIODE, S5688B	
D2002	WA1-0972-000		1	DIODE, S5688B	
D2003	WA1-0972-000		1	DIODE, S5688B	
D2004	WA1-0972-000		1	DIODE, S5688B	
D2005	WA1-0972-000		1	DIODE, S5688B	
D2006	WA1-0972-000		1	DIODE, S5688B	
D2007	WA1-0972-000		1	DIODE, S5688B	
D2008	WA1-0777-000		1	DIODE, AK04	
D2009	WA1-0777-000		1	DIODE, AK04	
D2010	WA1-0777-000		1	DIODE, AK04	
D2011	WA1-0777-000		1	DIODE, AK04	
D2012	WA1-0827-000		1	DIODE, ISS270	
D2020	WA1-5410-000		1	DIODE, RB441Q	
D2021	WA1-5410-000		1	DIODE, RB441Q	
D2022	WA1-5410-000		1	DIODE, RB441Q	
D2023	WA1-5410-000		1	DIODE, RB441Q	
D2024	WA1-5410-000		1	DIODE, RB441Q	
D2025	WA1-5410-000		1	DIODE, RB441Q	
FU2001	VD7-0026-000		1	FUSE, 50V, 0.6A	
IC2001	WA4-0672-000		1	IC, MB3773P	
IC2002	RH4-0189-040		1	IC, M34225M2, M-CON	
IC2020	WA4-1035-000		1	TRANSISTOR ARRAY, M54640P	
IC2021	WA4-1035-000		1	TRANSISTOR ARRAY, M54640P	
J2001	VS1-5046-008		1	CONNECTOR, 8P	
J2002	VS1-5451-002		1	CONNECTOR, 2P	
J2003	VS1-1029-002		1	CONNECTOR, 2P	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDD1- J2004	VS1-5451-004		1	CONNECTOR, 4P	
J2005	VS1-5451-006		1	CONNECTOR, 6P	
J2006	VS1-1029-003		1	CONNECTOR, 3P	
J2007	VS1-1029-006		1	CONNECTOR, 6P	
J2008	VS1-1029-004		1	CONNECTOR, 4P	
J2009	VS1-1029-002		1	CONNECTOR, 2P	
Q2003	WA2-1507-000		1	TRANSISTOR, 2SD601A	
Q2004	WA2-1507-000		1	TRANSISTOR, 2SD601A	
Q2005	WA2-1507-000		1	TRANSISTOR, 2SD601A	
Q2006	WA2-0935-000		1	TRANSISTOR, 2SC2712Y	
Q2007	WA2-0991-000		1	TRANSISTOR, 2SD1521 10W	
Q2008	WA2-0991-000		1	TRANSISTOR, 2SD1521 10W	
Q2009	WA2-0991-000		1	TRANSISTOR, 2SD1521 10W	
Q2010	WA2-0991-000		1	TRANSISTOR, 2SD1521 10W	
Q2011	WA2-1116-000		1	TRANSISTOR, 2SD2019	
Q2012	WA2-1507-000		1	TRANSISTOR, 2SD601A	
Q2013	WA2-1116-000		1	TRANSISTOR, 2SD2019	
Q2014	WA2-1507-000		1	TRANSISTOR, 2SD601A	
Q2015	WA2-1116-000		1	TRANSISTOR, 2SD2019	
Q2016	WA2-1507-000		1	TRANSISTOR, 2SD601A	
Q2022	WA4-1189-000		1	REGULATOR	
R2004	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R2005	VV1-7118-392		1	RESISTOR, 3.9OHM, 1/10W	
R2006	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R2007	VV1-7118-682		1	RESISTOR, 6.8KOHM, 1/10W	
R2008	VV1-7118-682		1	RESISTOR, 6.8KOHM, 1/10W	
R2009	VV1-7118-682		1	RESISTOR, 6.8KOHM, 1/10W	
R2010	VV1-7118-682		1	RESISTOR, 6.8KOHM, 1/10W	
R2011	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R2012	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R2013	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R2014	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R2015	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R2016	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R2017	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R2018	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R2019	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R2020	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R2021	VV1-7118-682		1	RESISTOR, 6.8KOHM, 1/10W	
R2022	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R2023	VV1-7118-682		1	RESISTOR, 6.8KOHM, 1/10W	
R2024	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R2025	VV1-7118-682		1	RESISTOR, 6.8KOHM, 1/10W	
R2026	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R2032	VR5-3970-132		1	RESISTOR, 1.3KOHM, 1W	
R2033	VR5-3970-132		1	RESISTOR, 1.3KOHM, 1W	
R2034	VR5-3970-132		1	RESISTOR, 1.3KOHM, 1W	
R2036	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
R2037	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R2038	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	

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FIGURE & KEY NO.		PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDD1-	R2039	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R2040	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R2041	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R2042	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R2043	VV1-7118-563		1	RESISTOR, 56KOHM, 1/10W	
	R2044	VR9-5216-000		1	RESISTOR, 0.68 OHM, 1/2W	
	R2045	VV1-7118-563		1	RESISTOR, 56KOHM, 1/10W	
	R2046	VR9-5216-000		1	RESISTOR, 0.68 OHM, 1/2W	
	R2047	VR5-4150-101		1	RESISTOR, 100 OHM, 2W	
	R2048	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
	R2049	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	R2050	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R2051	VV1-7118-273		1	RESISTOR, 27KOHM, 1/10W	
	R2052	VR5-3970-132		1	RESISTOR, 1.3KOHM, 1W	
	R2055	VR5-4150-101		1	RESISTOR, 100 OHM, 2W	
	R2060	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R2061	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
	R2062	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
	R2063	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R2064	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R2065	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R2066	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
	R2067	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	R2068	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
	X2001	WK2-0159-000		1	QUARTZ, CERAMIC, CSA2.50MG	

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ENVELOPE FEEDER

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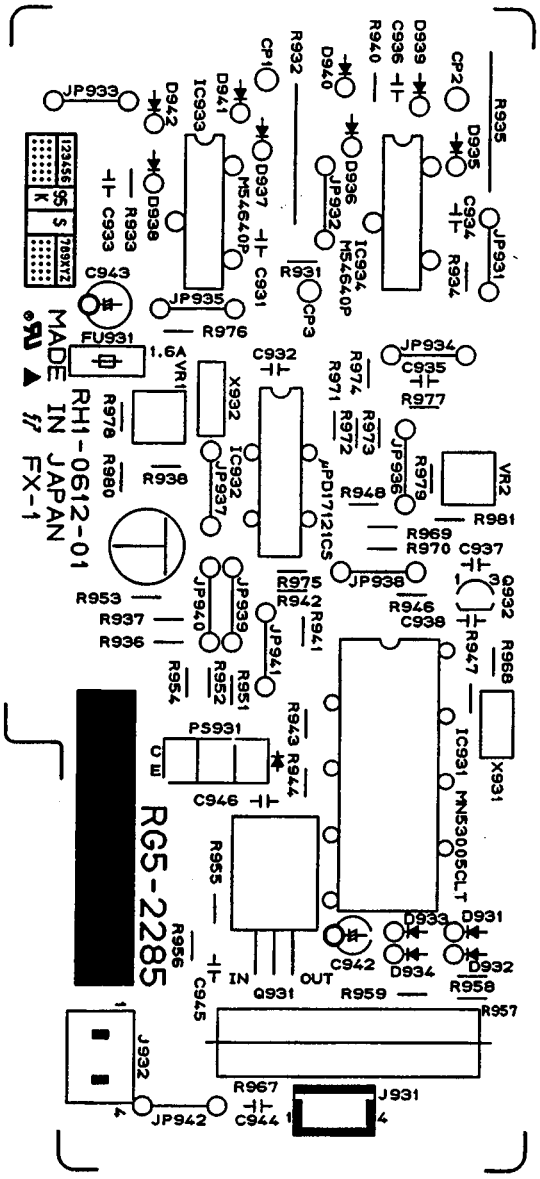
FIGURE CDF1 ENVELOPE FEEDER PCB ASS'Y



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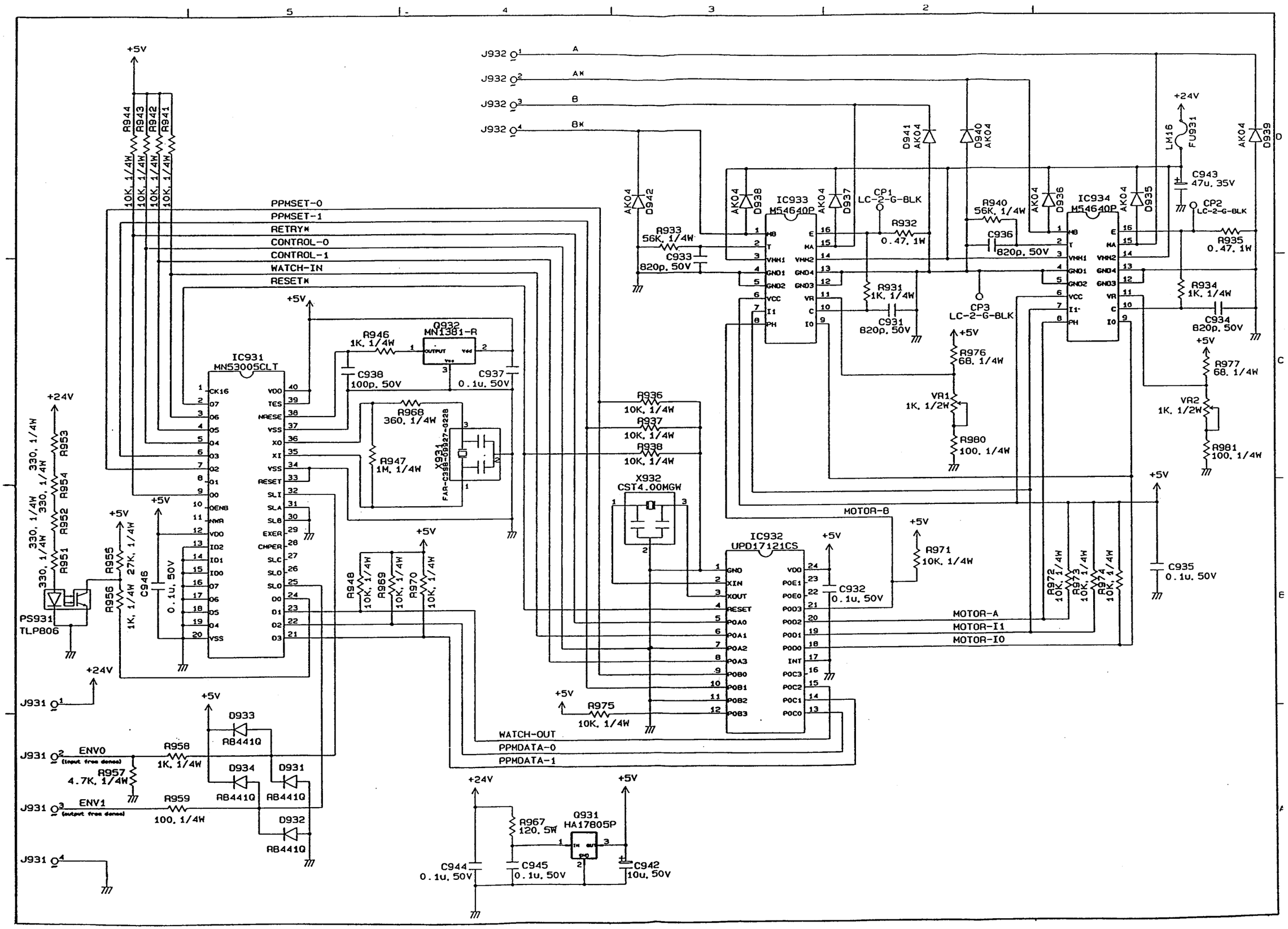

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDF1-	RG5-2285-000		1	ENVELOPE FEEDER PCB ASS'Y	
C 931	VC4-3503-821		1	CAPACITOR, 820PF, 50V	
C 932	VC9-5047-000		1	CAPACITOR, 0.1UF, 50V	
C 933	VC4-3503-821		1	CAPACITOR, 820PF, 50V	
C 934	VC4-3503-821		1	CAPACITOR, 820PF, 50V	
C 935	VC9-5047-000		1	CAPACITOR, 0.1UF, 50V	
C 936	VC4-3503-821		1	CAPACITOR, 820PF, 50V	
C 937	VC9-5047-000		1	CAPACITOR, 0.1UF, 50V	
C 938	VC4-3503-101		1	CAPACITOR, 100PF, 50V	
C 942	VC7-4940-106		1	CAPACITOR, 10UF, 50V	
C 943	VC7-4930-476		1	CAPACITOR, 47UF, 35V	
C 944	VC9-5047-000		1	CAPACITOR, 0.1UF, 50V	
C 945	VC9-5047-000		1	CAPACITOR, 0.1UF, 50V	
C 946	VC9-5047-000		1	CAPACITOR, 0.1UF, 50V	
CP 1	WT1-0122-000		1	PIN, CHECK	
CP 2	WT1-0122-000		1	PIN, CHECK	
CP 3	WT1-0122-000		1	PIN, CHECK	
D 931	WA1-5410-000		1	DIODE, RB441Q	
D 932	WA1-5410-000		1	DIODE, RB441Q	
D 933	WA1-5410-000		1	DIODE, RB441Q	
D 934	WA1-5410-000		1	DIODE, RB441Q	
D 935	WA1-0777-000		1	DIODE, AK04	
D 936	WA1-0777-000		1	DIODE, AK04	
D 937	WA1-0777-000		1	DIODE, AK04	
D 938	WA1-0777-000		1	DIODE, AK04	
D 939	WA1-0777-000		1	DIODE, AK04	
D 940	WA1-0777-000		1	DIODE, AK04	
D 941	WA1-0777-000		1	DIODE, AK04	
D 942	WA1-0777-000		1	DIODE, AK04	
FU931	VD5-0221-601		1	FUSE	
IC931	RH4-5132-000		1	IC, MN53005CLT, GATE ARRAY	
IC932	RH7-4086-000		1	IC, UPD17121CS, M-CON	
IC933	WA4-1035-000		1	TRANSISTOR ARRAY, M54640P	
IC934	WA4-1035-000		1	TRANSISTOR ARRAY, M54640P	
J 931	VS1-1028-004		1	CONNECTOR, 4P	
J 932	VS1-5451-004		1	CONNECTOR, 4P	
PS931	WG8-0173-020		1	IC, TLP806, PHOTO INTERRUPTER	
Q 931	WA4-0135-000		1	IC, HA17805P, REGULATOR	
Q 932	WA4-5456-000		1	IC, MN1381-R, RESET	
R 931	VR5-3680-102		1	RESISTOR, 1KOHM, 1/4W	
R 932	VR9-5365-000		1	RESISTOR, 0.47 OHM, 1W	
R 933	VR5-3680-563		1	RESISTOR, 56KOHM, 1/4W	
R 934	VR5-3680-102		1	RESISTOR, 1KOHM, 1/4W	
R 935	VR9-5365-000		1	RESISTOR, 0.47 OHM, 1W	
R 936	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 937	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 938	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 940	VR5-3680-563		1	RESISTOR, 56KOHM, 1/4W	
R 941	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 942	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDF1- R 943	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 944	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 946	VR5-3680-102		1	RESISTOR, 1KOHM, 1/4W	
R 947	VR5-3680-105		1	RESISTOR, 1MOHM, 1/4W	
R 948	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 951	VR5-3680-331		1	RESISTOR, 330 OHM, 1/4W	
R 952	VR5-3680-331		1	RESISTOR, 330 OHM, 1/4W	
R 953	VR5-3680-331		1	RESISTOR, 330 OHM, 1/4W	
R 954	VR5-3680-331		1	RESISTOR, 330 OHM, 1/4W	
R 955	VR5-3680-273		1	RESISTOR, 27KOHM, 1/4W	
R 956	VR5-3680-102		1	RESISTOR, 1KOHM, 1/4W	
R 957	VR5-3680-472		1	RESISTOR, 4.7KOHM, 1/4W	
R 958	VR5-3680-102		1	RESISTOR, 1KOHM, 1/4W	
R 959	VR5-3680-101		1	RESISTOR, 100 OHM, 1/4W	
R 967	VR5-1490-121		1	RESISTOR, 120 OHM, 5W	
R 968	VR5-3680-361		1	RESISTOR, 360 OHM, 1/4W	
R 969	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 970	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 971	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 972	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 973	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 974	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 975	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 976	VR5-3680-680		1	RESISTOR, 68 OHM, 1/4W	
R 977	VR5-3680-680		1	RESISTOR, 68 OHM, 1/4W	
R 980	VR5-3680-101		1	RESISTOR, 100 OHM, 1/4W	
R 981	VR5-3680-101		1	RESISTOR, 100 OHM, 1/4W	
VR 1	VR5-0700-102		1	RESISTOR, 1KOHM, 1/2W	
VR 2	VR5-0700-102		1	RESISTOR, 1KOHM, 1/2W	
X 931	RH5-0055-000		1	OSCILLATOR, FAR	
X 932	WK2-0555-000		1	CERAMIC OSCILLATOR	

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PAPER DECK

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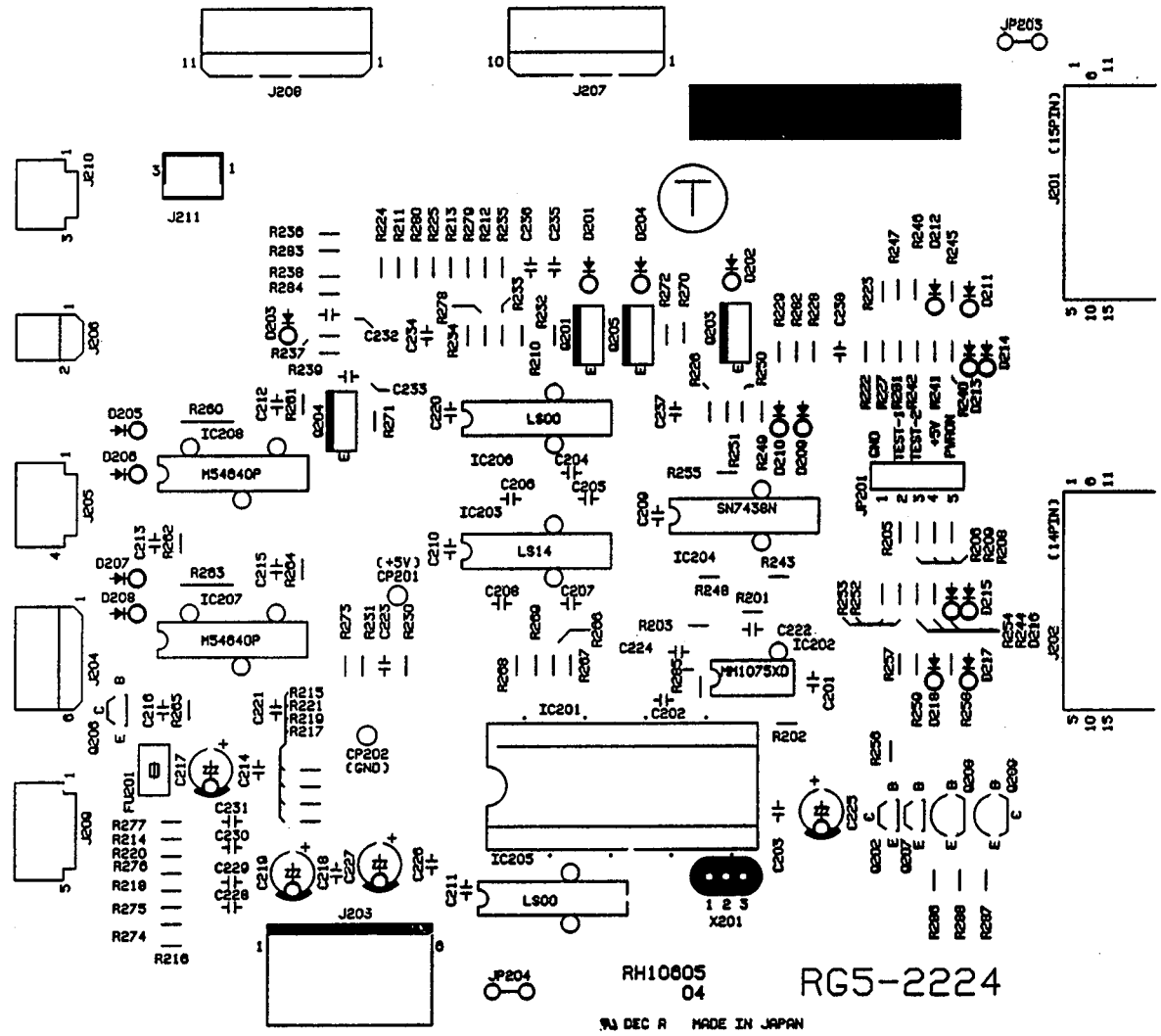
FIGURE CDR1 PAPER DECK DRIVER PCB ASS'Y



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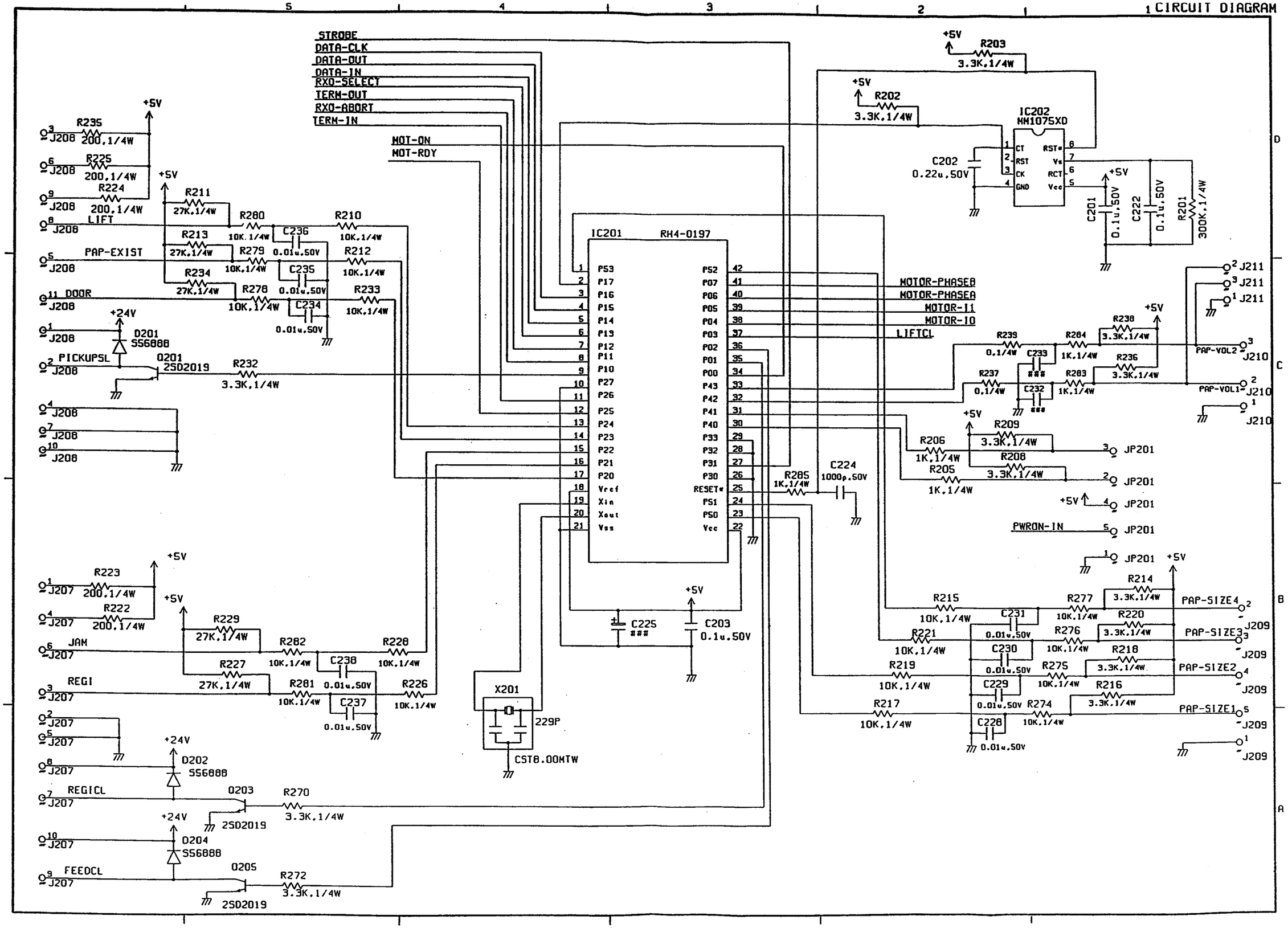

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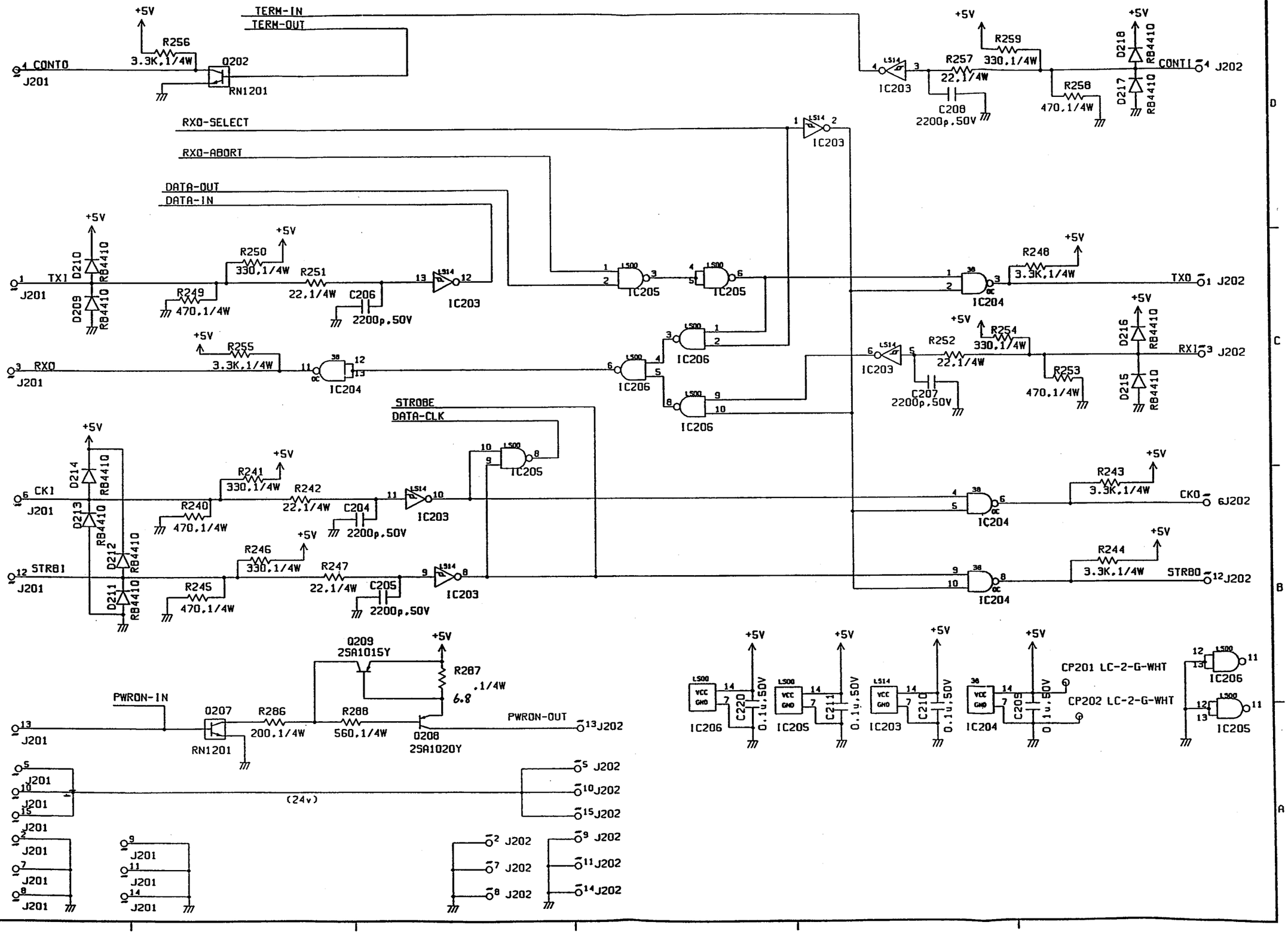

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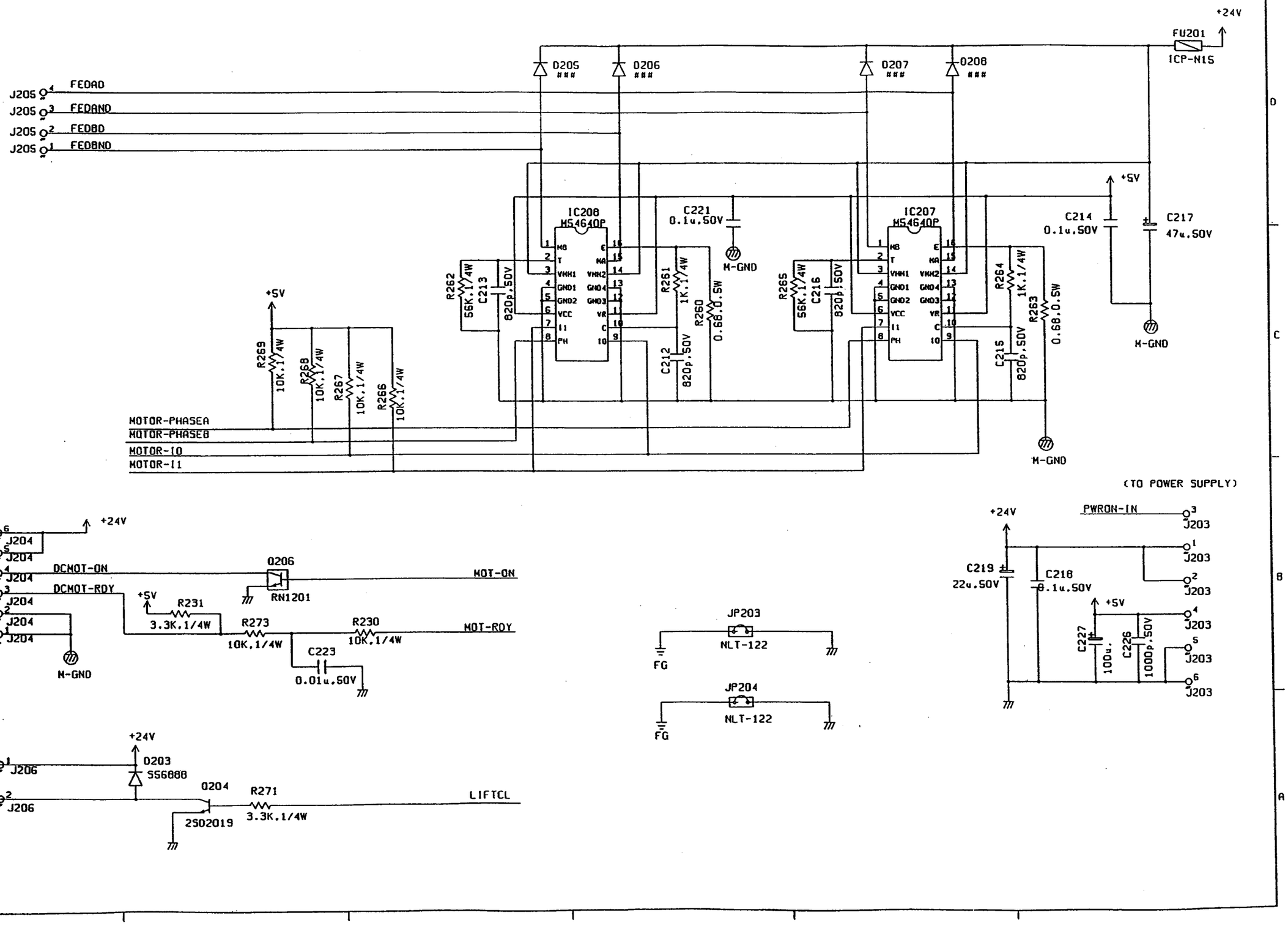

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDR1-	RG5-4198-000		1	PAPER DECK DRIVER PCB ASS'Y	
C 201	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 202	VC6-0620-224		1	CAPACITOR, 0.22UF, 50V	
C 203	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 204	VC4-3503-222		1	CAPACITOR, 2200PF, 50V	
C 205	VC4-3503-222		1	CAPACITOR, 2200PF, 50V	
C 206	VC4-3503-222		1	CAPACITOR, 2200PF, 50V	
C 207	VC4-3503-222		1	CAPACITOR, 2200PF, 50V	
C 208	VC4-3503-222		1	CAPACITOR, 2200PF, 50V	
C 209	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 210	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 211	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 212	VC4-3503-821		1	CAPACITOR, 820PF, 50V	
C 213	VC4-3503-821		1	CAPACITOR, 820PF, 50V	
C 214	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 215	VC4-3503-821		1	CAPACITOR, 820PF, 50V	
C 216	VC4-3503-821		1	CAPACITOR, 820PF, 50V	
C 217	VC8-3040-476		1	CAPACITOR, 47UF, 50V	
C 218	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 219	VC8-3040-226		1	CAPACITOR, 22UF, 50V	
C 220	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 221	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 222	VC6-0620-104		1	CAPACITOR, 0.1UF, 50V	
C 223	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
C 224	VC4-3503-102		1	CAPACITOR, 1000PF, 50V	
C 226	VC4-3503-102		1	CAPACITOR, 1000PF, 50V	
C 227	VC8-3000-107		1	CAPACITOR, 100UF, 50V	
C 228	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
C 229	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
C 230	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
C 231	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
C 234	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
C 235	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
C 236	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
C 237	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
C 238	VC6-0620-103		1	CAPACITOR, 0.01UF, 50V	
CP201	WT1-0337-000		1	PIN, CHECK	
CP202	WT1-0337-000		1	PIN, CHECK	
D 201	WA1-0972-000		1	DIODE, S5688B	
D 202	WA1-0972-000		1	DIODE, S5688B	
D 203	WA1-0972-000		1	DIODE, S5688B	
D 204	WA1-0972-000		1	DIODE, S5688B	
D 209	WA1-5410-000		1	DIODE, RB441Q	
D 210	WA1-5410-000		1	DIODE, RB441Q	
D 211	WA1-5410-000		1	DIODE, RB441Q	
D 212	WA1-5410-000		1	DIODE, RB441Q	
D 213	WA1-5410-000		1	DIODE, RB441Q	
D 214	WA1-5410-000		1	DIODE, RB441Q	
D 215	WA1-5410-000		1	DIODE, RB441Q	
D 216	WA1-5410-000		1	DIODE, RB441Q	

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FIGURE & KEY NO.		PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDR1-	D 217	WA1-5410-000		1	DIODE, RB441Q	
	D 218	WA1-5410-000		1	DIODE, RB441Q	
	FU201	WD1-0272-000		1	FUSE	
	IC201	RH4-0234-000		1	IC, M37471E4SP, C-MOS	
	IC202	WA4-5534-000		1	IC, MM1075XD, C-MOS	
	IC203	WA3-0002-000		1	IC, SN74LS14N, TTL	
	IC204	X65-7301-000		1	IC, TTL, 7438	
	IC205	WA3-0132-000		1	TTL IC, SN74LS00N	
	IC206	WA3-0132-000		1	TTL IC, SN74LS00N	
	IC207	WA4-1035-000		1	TRANSISTOR ARRAY, M54640P	
	IC208	WA4-1035-000		1	TRANSISTOR ARRAY, M54640P	
	J 201	WS1-5613-000		1	CONNECTOR, 15P	
	J 202	WS1-5612-000		1	CONNECTOR, 15P	
	J 203	VS1-5616-006		1	CONNECTOR, 6P	
	J 204	VS1-1029-006		1	CONNECTOR, 6P	
	J 205	VS1-5451-004		1	CONNECTOR, 4P	
	J 206	VS1-1029-002		1	CONNECTOR, 2P	
	J 207	VS1-1029-010		1	CONNECTOR, 10P	
	J 208	VS1-1029-011		1	CONNECTOR, 11P	
	J 209	VS1-5451-005		1	CONNECTOR, 5P	
	J 210	VS1-5451-003		1	CONNECTOR, 3P	
	J 211	VS1-5517-003		1	CONNECTOR, 3P	
	JP201	VS1-6001-005		1	CONNECTOR, 5P	
	Q 201	WA2-1116-000		1	TRANSISTOR, 2SD2019	
	Q 202	WA2-0796-000		1	TRANSISTOR, RN1201	
	Q 203	WA2-1116-000		1	TRANSISTOR, 2SD2019	
	Q 204	WA2-1116-000		1	TRANSISTOR, 2SD2019	
	Q 205	WA2-1116-000		1	TRANSISTOR, 2SD2019	
	Q 206	WA2-0796-000		1	TRANSISTOR, RN1201	
	Q 207	WA2-0796-000		1	TRANSISTOR, RN1201	
	Q 208	WA2-0236-000		1	TRANSISTOR, 2SA1020Y	
	Q 209	WA2-0135-000		1	TRANSISTOR, 2SA1015Y	
	R 201	VR5-3680-304		1	RESISTOR, 300KOHM, 1/4W	
	R 202	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
	R 203	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
	R 205	VR5-3680-102		1	RESISTOR, 1KOHM, 1/4W	
	R 206	VR5-3680-102		1	RESISTOR, 1KOHM, 1/4W	
	R 208	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
	R 209	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
	R 210	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
	R 211	VR5-3680-273		1	RESISTOR, 27KOHM, 1/4W	
	R 212	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
	R 213	VR5-3680-273		1	RESISTOR, 27KOHM, 1/4W	
	R 214	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
	R 215	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
	R 216	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
	R 217	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
	R 218	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
	R 219	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
	R 220	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDR1- R 221	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 222	VR5-3680-201		1	RESISTOR, 200 OHM, 1/4W	
R 223	VR5-3680-201		1	RESISTOR, 200 OHM, 1/4W	
R 224	VR5-3680-201		1	RESISTOR, 200 OHM, 1/4W	
R 225	VR5-3680-201		1	RESISTOR, 200 OHM, 1/4W	
R 226	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 227	VR5-3680-273		1	RESISTOR, 27KOHM, 1/4W	
R 228	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 229	VR5-3680-273		1	RESISTOR, 27KOHM, 1/4W	
R 230	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 231	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 232	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 233	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 234	VR5-3680-273		1	RESISTOR, 27KOHM, 1/4W	
R 235	VR5-3680-201		1	RESISTOR, 200 OHM, 1/4W	
R 236	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 237	VR5-3680-000		1	RESISTOR, 0 OHM, 1/4W	
R 238	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 239	VR5-3680-000		1	RESISTOR, 0 OHM, 1/4W	
R 240	VR5-3680-471		1	RESISTOR, 470 OHM, 1/4W	
R 241	VR5-3680-331		1	RESISTOR, 330 OHM, 1/4W	
R 242	VR5-3680-220		1	RESISTOR, 22 OHM, 1/4W	
R 243	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 244	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 245	VR5-3680-471		1	RESISTOR, 470 OHM, 1/4W	
R 246	VR5-3680-331		1	RESISTOR, 330 OHM, 1/4W	
R 247	VR5-3680-220		1	RESISTOR, 22 OHM, 1/4W	
R 248	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 249	VR5-3680-471		1	RESISTOR, 470 OHM, 1/4W	
R 250	VR5-3680-331		1	RESISTOR, 330 OHM, 1/4W	
R 251	VR5-3680-220		1	RESISTOR, 22 OHM, 1/4W	
R 252	VR5-3680-220		1	RESISTOR, 22 OHM, 1/4W	
R 253	VR5-3680-471		1	RESISTOR, 470 OHM, 1/4W	
R 254	VR5-3680-331		1	RESISTOR, 330 OHM, 1/4W	
R 255	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 256	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 257	VR5-3680-220		1	RESISTOR, 22 OHM, 1/4W	
R 258	VR5-3680-471		1	RESISTOR, 470 OHM, 1/4W	
R 259	VR5-3680-331		1	RESISTOR, 330 OHM, 1/4W	
R 260	VR9-5216-000		1	RESISTOR, 0.68 OHM, 1/2W	
R 261	VR5-3680-102		1	RESISTOR, 1KOHM, 1/4W	
R 262	VR5-3680-563		1	RESISTOR, 56KOHM, 1/4W	
R 263	VR9-5216-000		1	RESISTOR, 0.68 OHM, 1/2W	
R 264	VR5-3680-102		1	RESISTOR, 1KOHM, 1/4W	
R 265	VR5-3680-563		1	RESISTOR, 56KOHM, 1/4W	
R 266	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 267	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 268	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 269	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 270	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDR1- R 271	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 272	VR5-3680-332		1	RESISTOR, 3.3KOHM, 1/4W	
R 273	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 274	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 275	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 276	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 277	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 278	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 279	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 280	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 281	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 282	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 283	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 284	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 285	VR5-3680-103		1	RESISTOR, 10KOHM, 1/4W	
R 286	VR5-3680-201		1	RESISTOR, 200 OHM, 1/4W	
R 287	VR5-3680-689		1	RESISTOR, 6.8 OHM, 1/4W	
R 288	VR5-3680-561		1	RESISTOR, 560 OHM, 1/4W	
X 201	WK2-5091-000		1	CRYSTAL, OSCILLATOR	

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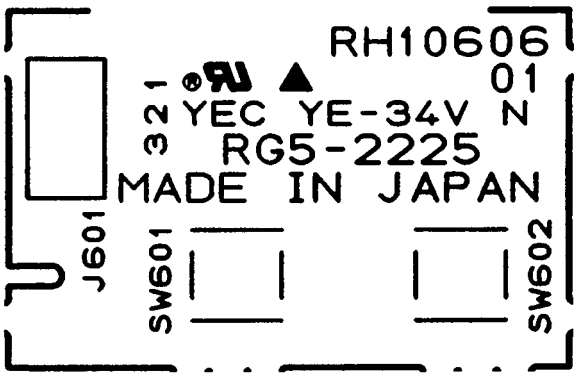
FIGURE CDR2 PAPER SENSOR PCB ASS'Y



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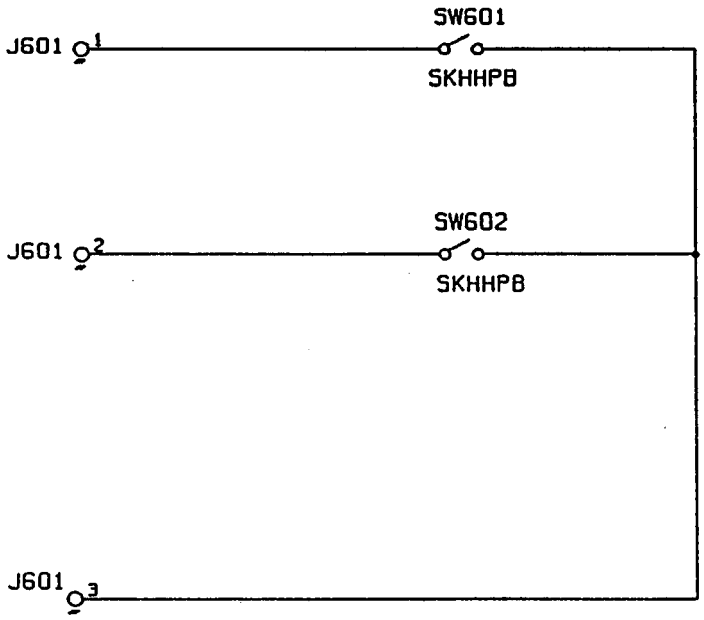

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDR2-	RG5-2225-000		1	PAPER SENSOR PCB ASS'Y	
J 601	VS1-5451-003		1	CONNECTOR, 3P	
SW601	WC2-0100-000		1	SWITCH, TACT	
SW602	WC2-0100-000		1	SWITCH, TACT	

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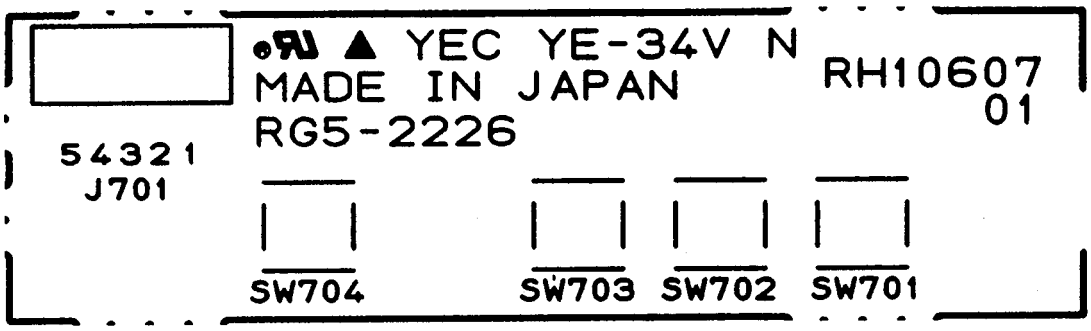
FIGURE CDR3 PAPER-SIZE SENSING PCB ASS'Y



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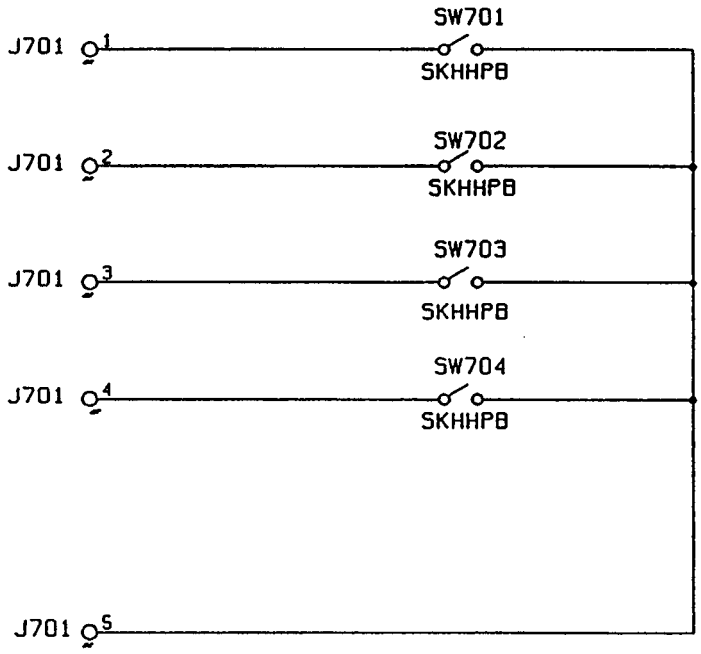

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDR3-	RG5-2226-000		1	PAPER-SIZE SENSING PCB ASS'Y	
J 701	VS1-5451-005		1	CONNECTOR, 5P	
SW701	WC2-0100-000		1	SWITCH, TACT	
SW702	WC2-0100-000		1	SWITCH, TACT	
SW703	WC2-0100-000		1	SWITCH, TACT	
SW704	WC2-0100-000		1	SWITCH, TACT	

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OPTION CONTROLLER

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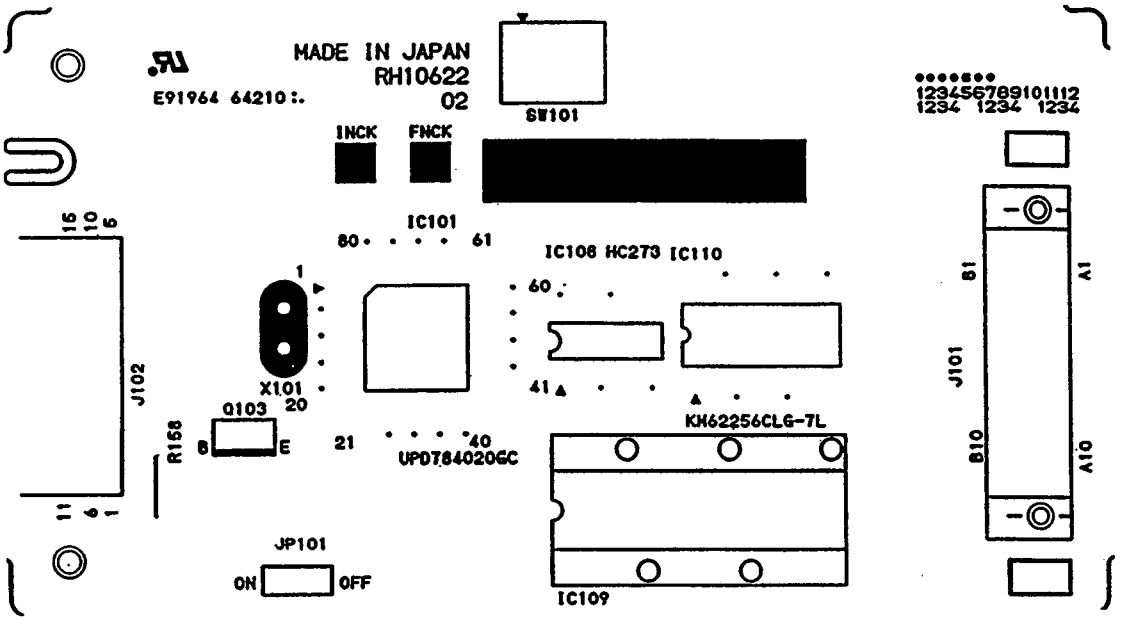
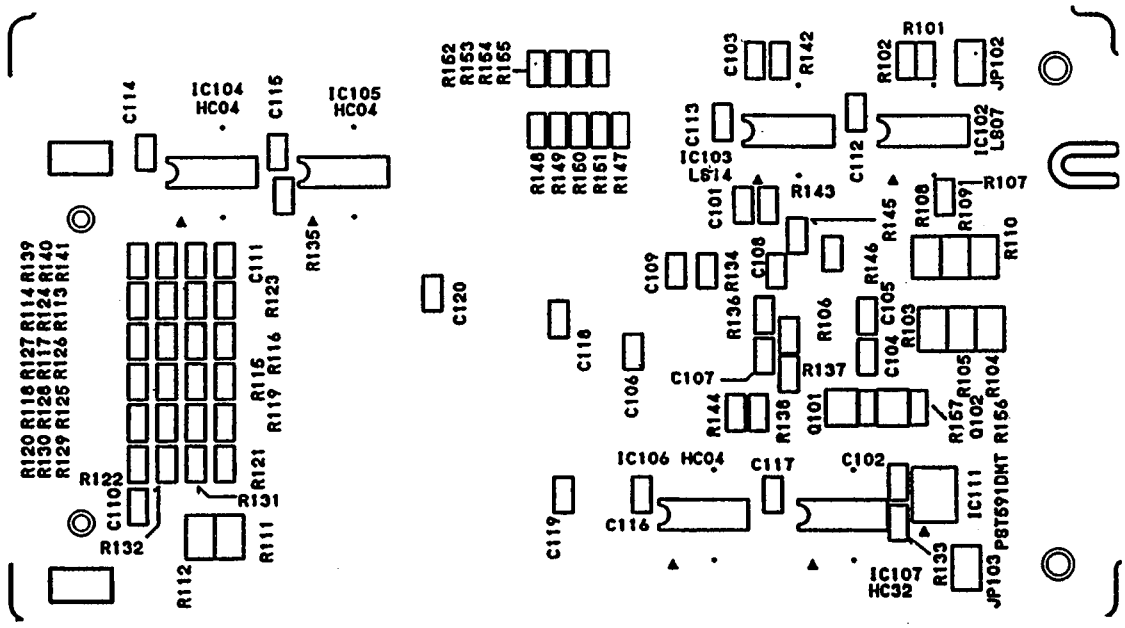
FIGURE CDV1 OPTION CONTROLLER PCB ASS'Y





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IC101

UPD784020GC-389

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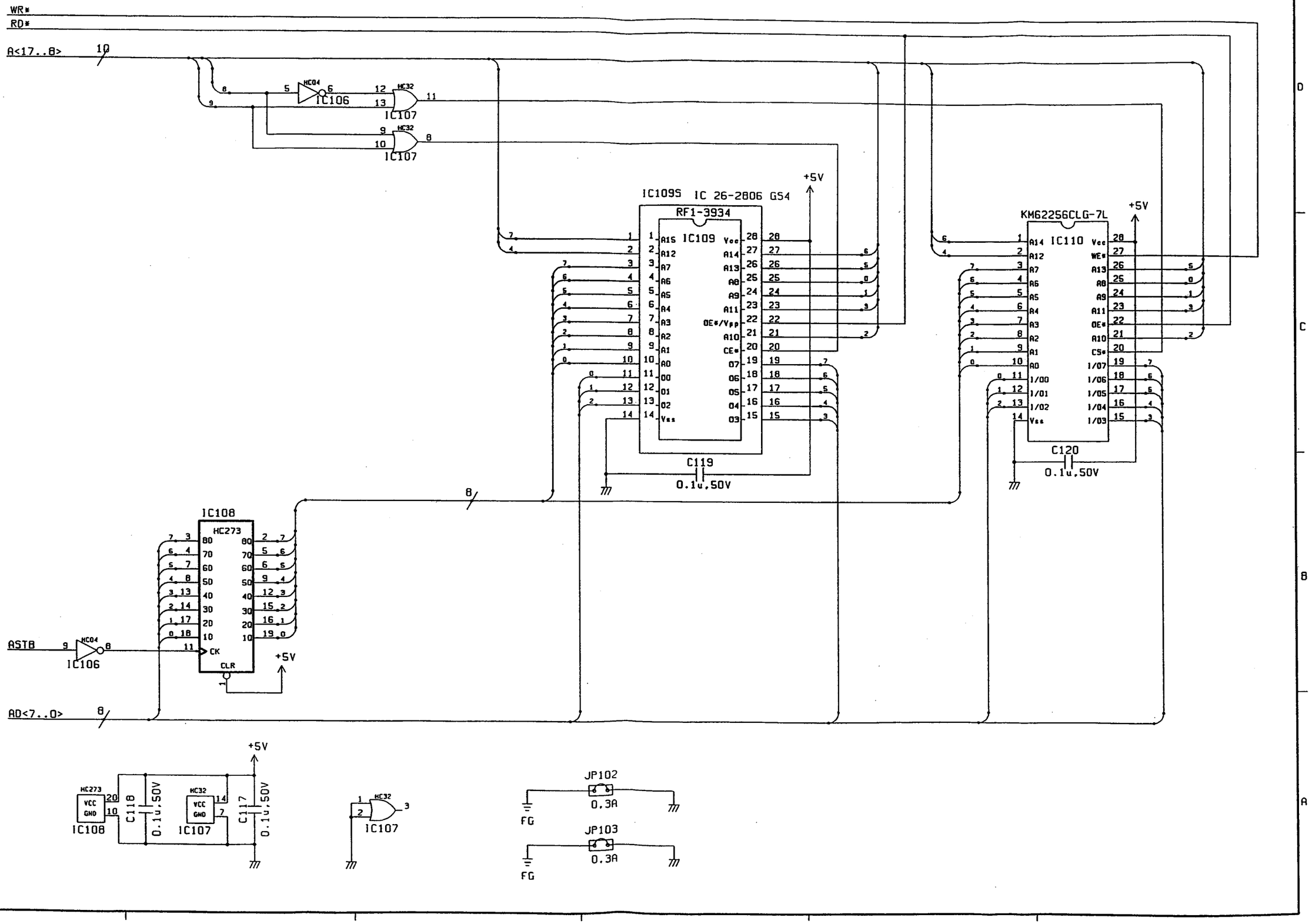

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDV1-	RG5-3691-020		1	OPTION CONTROLLER PCB ASS'Y	
C 101	VW4-2835-222		1	CAPACITOR, 2200PF, 50V	
C 102	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 103	VW4-2835-222		1	CAPACITOR, 2200PF, 50V	
C 104	VW4-2234-150		1	CAPACITOR, 15PF, 50V	
C 105	VW4-2234-150		1	CAPACITOR, 15PF, 50V	
C 106	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 107	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 108	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 109	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 110	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 111	VW4-2835-222		1	CAPACITOR, 2200PF, 50V	
C 112	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 113	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 114	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 115	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 116	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 117	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 118	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 119	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
C 120	VW4-2037-104		1	CAPACITOR, 0.1UF, 50V	
IC101	WA3-8575-000		1	IC, UPD784020GC-3B9, M-CON	
IC102	WA3-3486-000		1	TTL IC, LS07NS	
IC103	WA3-1227-000		1	IC, SN74LS14NS, TTL	
IC104	WA3-2950-000		1	HC-CMOS, TC74HC04F	
IC105	WA3-2950-000		1	HC-CMOS, TC74HC04F	
IC106	WA3-2950-000		1	HC-CMOS, TC74HC04F	
IC107	WA3-2956-000		1	HC-CMOS, TC74HC32F	
IC108	WA3-2968-000		1	IC, HD74HC273FP, C-MOS	
IC109	RF1-3934-050		1	IC, TMS27C512-12JL, EP-ROM	
IC109S	WA9-0224-000		1	SOCKET, IC	
IC110	WA3-8513-000		1	IC, KM62256CLG-7L, S-RAM	
IC111	WA4-5587-000		1	IC, PST591DMT RESET	
J 101	VS1-6164-020		1	CONNECTOR, 20P	
J 102	WS1-5612-000		1	CONNECTOR, 15P	
JP101	VS1-0456-003		1	CONNECTOR, 3P	
JP101S	WT1-5412-000		1	CONNECTOR, 2P	
JP102	VV1-5000-000		1	JUMPER	
JP103	VV1-5000-000		1	JUMPER	
Q 101	WA2-0833-000		1	TRANSISTOR, RN1401	
Q 102	WA2-1004-000		1	TRANSISTOR, 2SA1162Y	
Q 103	WA2-6232-000		1	TRANSISTOR, 2SB1331	
R 101	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 102	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 103	VV1-5148-220		1	RESISTOR, 22 OHM, 1/4W	
R 104	VV1-5148-471		1	RESISTOR, 470 OHM, 1/4W	
R 105	VV1-5148-331		1	RESISTOR, 330 OHM, 1/4W	
R 106	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R 107	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 108	VV1-5148-220		1	RESISTOR, 22 OHM, 1/4W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDV1- R 109	VV1-5148-471		1	RESISTOR, 470 OHM, 1/4W	
R 110	VV1-5148-331		1	RESISTOR, 330 OHM, 1/4W	
R 111	VV1-5148-101		1	RESISTOR, 100 OHM, 1/4W	
R 112	VV1-5148-101		1	RESISTOR, 100 OHM, 1/4W	
R 113	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 114	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 115	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 116	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 117	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 118	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 119	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 120	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 121	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 122	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 123	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 124	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 125	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 126	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 127	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 128	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 129	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 130	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 131	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 132	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 133	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R 134	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 135	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 136	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 137	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 138	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 139	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 140	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 141	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 142	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 143	VV1-7118-332		1	RESISTOR, 3.3KOHM, 1/10W	
R 144	VV1-7118-102		1	RESISTOR, 1KOHM, 1/10W	
R 145	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 146	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 147	VV1-7118-103		1	RESISTOR, 10KOHM, 1/10W	
R 148	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 149	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 150	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 151	VV1-7118-101		1	RESISTOR, 100 OHM, 1/10W	
R 152	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R 153	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R 154	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R 155	VV1-7118-472		1	RESISTOR, 4.7KOHM, 1/10W	
R 156	VV1-7118-152		1	RESISTOR, 1.5KOHM, 1/10W	
R 157	VV1-7118-201		1	RESISTOR, 200 OHM, 1/10W	
R 158	VR9-5424-000		1	RESISTOR, 5.76 OHM, 1/4W	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
CDV1- SW101	WC8-0170-000		1	SWITCH, DIP	
X 101	WK2-0333-000		1	OSCILLATOR QUARTS	

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PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.
FH4-5489-000	CD 2 - IC203	VC8-3040-106	CD 2 - C 227	VR5-3680-103	CDR1 - R 230
RF1-3934-050	CDV1 - IC109		CD 2 - C 239		CDR1 - R 233
RG1-3736-00V	CD 6 -		CDD1 - C2013		CDR1 - R 266
RG1-3762-00V	CD 6A -		CDD1 - C2016		CDR1 - R 267
RG5-1844-050	CD 2 -		CDD1 - C2018		CDR1 - R 268
RG5-1845-000	CD 5 -	VC8-3040-226	CDR1 - C 219		CDR1 - R 269
RG5-1846-000	CD 1 -	VC8-3040-476	CDR1 - C 217		CDR1 - R 273
RG5-1860-000	CD 3 -	VC8-5800-226	CD 6 - C 55		CDR1 - R 274
RG5-1884-000	CD 4 -		CD 6A - C 55		CDR1 - R 275
RG5-1904-050	CDD1 -	VC8-5800-476	CD 6 - C 3		CDR1 - R 276
RG5-2225-000	CDR2 -		CD 6 - C 35		CDR1 - R 277
RG5-2226-000	CDR3 -		CD 6 - C 75		CDR1 - R 278
RG5-2285-000	CDF1 -		CD 6A - C 3		CDR1 - R 279
RG5-3691-020	CDV1 -		CD 6A - C 35		CDR1 - R 280
RG5-4198-000	CDR1 -		CD 6A - C 75		CDR1 - R 281
RH2-5275-000	CD 6 - J 1	VC8-7150-477	CD 6 - C 4		CDR1 - R 282
	CD 6 - J 2		CD 6 - C 57		CDR1 - R 283
	CD 6A - J 1		CD 6 - C 65		CDR1 - R 284
	CD 6A - J 2		CD 6A - C 4		CDR1 - R 285
RH2-5292-00V	CD 6 - J 9		CD 6A - C 57	VR5-3680-105	CDF1 - R 947
	CD 6A - J 9		CD 6A - C 65	VR5-3680-162	CD 2 - R 270
RH4-0188-060	CD 2 - IC201	VC9-5047-000	CDF1 - C 932	VR5-3680-201	CD 2 - R 412
RH4-0189-040	CDD1 - IC2002		CDF1 - C 935		CD 3 - R1209
RH4-0234-000	CDR1 - IC201		CDF1 - C 937		CD 3 - R1210
RH4-5132-000	CDF1 - IC931		CDF1 - C 944		CDR1 - R 222
RH4-5310-000	CD 2 - IC205		CDF1 - C 945		CDR1 - R 223
RH4-5328-000	CD 6 - IC 21		CDF1 - C 946		CDR1 - R 224
	CD 6A - IC 21	VD5-0221-001	CD 2 - FU201		CDR1 - R 225
RH4-5360-00V	CD 6 - IC 10	VD5-0221-601	CDF1 - FU931		CDR1 - R 235
	CD 6A - IC 10	VD7-0026-000	CDD1 - FU2001		CDR1 - R 286
RH5-0053-000	CD 2 - X 201	VL7-1970-100	CD 6 - L 2	VR5-3680-220	CDR1 - R 242
RH5-0055-000	CDF1 - X 931		CD 6A - L 2		CDR1 - R 247
RH5-0091-000	CD 2 - X 202	VL7-1970-470	CD 6 - L 1		CDR1 - R 251
RH6-3731-00V	CD 6 - X 1		CD 6A - L 1		CDR1 - R 252
	CD 6A - X 1	VR5-0700-102	CDF1 - VR 1		CDR1 - R 257
RH7-4086-000	CDF1 - IC932		CDF1 - VR 2	VR5-3680-221	CD 1 - R1401
VC4-3503-101	CDF1 - C 938	VR5-1480-222	CD 2 - R 334		CD 1 - R1402
VC4-3503-102	CDR1 - C 224		CD 2 - R 337		CD 1 - R1403
	CDR1 - C 226		CD 2 - R 368		CD 3 - R1201
VC4-3503-222	CDR1 - C 204		CD 2 - R 499		CD 3 - R1202
	CDR1 - C 205	VR5-1490-121	CDF1 - R 967		CD 3 - R1203
	CDR1 - C 206	VR5-2360-471	CD 2 - R 407		CD 3 - R1204
	CDR1 - C 207	VR5-3680-000	CDR1 - R 237		CD 3 - R1205
	CDR1 - C 208		CDR1 - R 239		CD 3 - R1206
VC4-3503-821	CDF1 - C 931	VR5-3680-101	CDF1 - R 959		CD 3 - R1207
	CDF1 - C 933		CDF1 - R 980		CD 3 - R1208
	CDF1 - C 934		CDF1 - R 981		CD 4 - R1301
	CDF1 - C 936	VR5-3680-102	CDF1 - R 931		CD 4 - R1302
	CDR1 - C 212		CDF1 - R 934	VR5-3680-273	CDF1 - R 955
	CDR1 - C 213		CDF1 - R 946		CDR1 - R 211
	CDR1 - C 215		CDF1 - R 956		CDR1 - R 213
	CDR1 - C 216		CDF1 - R 958		CDR1 - R 227
VC5-8040-104	CDD1 - C2001		CDR1 - R 205		CDR1 - R 229
	CDD1 - C2004		CDR1 - R 206		CDR1 - R 234
	CDD1 - C2006		CDR1 - R 261	VR5-3680-304	CDR1 - R 201
	CDD1 - C2007		CDR1 - R 264	VR5-3680-331	CDF1 - R 951
	CDD1 - C2011	VR5-3680-103	CD 2 - R 332		CDF1 - R 952
	CDD1 - C2015		CD 2 - R 339		CDF1 - R 953
	CDD1 - C2017		CD 2 - R 340		CDF1 - R 954
VC6-0620-103	CDR1 - C 223		CD 2 - R 341		CDR1 - R 241
	CDR1 - C 228		CD 2 - R 370		CDR1 - R 246
	CDR1 - C 229		CD 2 - R 497		CDR1 - R 250
	CDR1 - C 230		CDF1 - R 936		CDR1 - R 254
	CDR1 - C 231		CDF1 - R 937		CDR1 - R 259
	CDR1 - C 234		CDF1 - R 938	VR5-3680-332	CDR1 - R 202
	CDR1 - C 235		CDF1 - R 941		CDR1 - R 203
	CDR1 - C 236		CDF1 - R 942		CDR1 - R 208
	CDR1 - C 237		CDF1 - R 943		CDR1 - R 209
	CDR1 - C 238		CDF1 - R 944		CDR1 - R 214
VC6-0620-104	CDR1 - C 201		CDF1 - R 948		CDR1 - R 216
	CDR1 - C 203		CDF1 - R 969		CDR1 - R 218
	CDR1 - C 209		CDF1 - R 970		CDR1 - R 220
	CDR1 - C 210		CDF1 - R 971		CDR1 - R 231
	CDR1 - C 211		CDF1 - R 972		CDR1 - R 232
	CDR1 - C 214		CDF1 - R 973		CDR1 - R 236
	CDR1 - C 218		CDF1 - R 974		CDR1 - R 238
	CDR1 - C 220		CDF1 - R 975		CDR1 - R 243
	CDR1 - C 221		CDR1 - R 210		CDR1 - R 244
	CDR1 - C 222		CDR1 - R 212		CDR1 - R 248
VC6-0620-224	CDR1 - C 202		CDR1 - R 215		CDR1 - R 255
VC7-4930-476	CDF1 - C 943		CDR1 - R 217		CDR1 - R 256
VC7-4940-106	CDF1 - C 942		CDR1 - R 219		CDR1 - R 270
VC8-3000-107	CDR1 - C 227		CDR1 - R 221		CDR1 - R 271
VC8-3030-476	CD 2 - C 237		CDR1 - R 226		CDR1 - R 272
	CD 2 - C 288		CDR1 - R 228	VR5-3680-361	CDF1 - R 968

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PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.
VR5-3680-471	CDR1 - R 240	VR7-7230-103	CD 6A - RA 34	VS1-5517-010	CD 2 - J 202
	CDR1 - R 245	VR7-7230-220	CD 6 - RA 21		CD 2 - J 215
	CDR1 - R 249		CD 6 - RA 26	VS1-5616-006	CDR1 - J 203
	CDR1 - R 253		CD 6 - RA 28	VS1-5710-036	CD 6 - J 8
	CDR1 - R 258		CD 6 - RA 29		CD 6A - J 8
VR5-3680-472	CDF1 - R 957		CD 6 - RA 31	VS1-6001-005	CDR1 - JP201
VR5-3680-561	CDR1 - R 288		CD 6 - RA 33	VS1-6044-048	CD 2 - J 201
VR5-3680-563	CDF1 - R 933		CD 6A - RA 21	VS1-6164-020	CDV1 - J 101
	CDF1 - R 940		CD 6A - RA 26	VS3-5013-014	CD 1 - J1401
	CDR1 - R 262		CD 6A - RA 28	VS3-5013-020	CD 3 - J1201
	CDR1 - R 265		CD 6A - RA 29	VS3-5047-020	CD 6 - J 7
VR5-3680-680	CDF1 - R 976		CD 6A - RA 31		CD 6A - J 7
	CDF1 - R 977		CD 6A - RA 33	VV1-5000-000	CDV1 - JP102
VR5-3680-689	CDR1 - R 287	VR7-7230-222	CD 6 - RA 20		CDV1 - JP103
VR5-3680-751	CD 2 - R 274		CD 6A - RA 20	VV1-5148-101	CDV1 - R 111
VR5-3680-913	CD 2 - R 279	VR9-5087-000	CD 2 - R 403		CDV1 - R 112
VR5-3714-122	CD 2 - R 342		CD 2 - R 404	VV1-5148-220	CDV1 - R 103
VR5-3970-132	CDD1 - R2032		CD 2 - R 494		CDV1 - R 108
	CDD1 - R2033	VR9-5216-000	CD 2 - R 382	VV1-5148-331	CDV1 - R 105
	CDD1 - R2034		CD 2 - R 384		CDV1 - R 110
	CDD1 - R2052		CDD1 - R2044	VV1-5148-471	CDV1 - R 104
VR5-4150-101	CDD1 - R2047		CDD1 - R2046		CDV1 - R 109
	CDD1 - R2055		CDR1 - R 260	VV1-6148-101	CD 6 - R 41
VR5-4150-271	CD 2 - R 406		CDR1 - R 263		CD 6A - R 41
VR5-6411-503	CD 2 - R 485	VR9-5365-000	CDF1 - R 932	VV1-7118-101	CD 2 - R 218
VR5-6412-401	CD 2 - R 214		CDF1 - R 935		CD 2 - R 228
VR5-8020-479	CD 2 - R 333	VR9-5424-000	CDV1 - R 158		CD 2 - R 229
	CD 2 - R 338		CD 6 - R 43		CD 2 - R 230
	CD 2 - R 369		CD 6A - R 43		CD 2 - R 231
	CD 2 - R 498	VS1-0456-003	CDV1 - JP101		CD 2 - R 232
VR7-0611-203	CD 2 - R 224	VS1-0491-002	CD 6 - JP 1		CD 2 - R 233
VR7-0611-502	CD 2 - R 225		CD 6A - JP 1		CD 2 - R 234
VR7-5850-102	CD 6 - RA 16	VS1-0528-048	CD 6 - J 6		CD 2 - R 235
	CD 6A - RA 16		CD 6A - J 6		CD 2 - R 239
VR7-5850-103	CD 6 - RA 2	VS1-0545-020	CD 2 - J 220		CD 2 - R 240
	CD 6 - RA 11	VS1-0755-002	CD 2 - J 223		CD 2 - R 241
	CD 6 - RA 19	VS1-0755-003	CD 2 - J 221		CD 2 - R 251
	CD 6 - RA 24	VS1-0755-005	CD 2 - J 207		CD 2 - R 252
	CD 6A - RA 2	VS1-0755-006	CD 2 - J 218		CD 2 - R 259
	CD 6A - RA 11	VS1-0755-008	CD 2 - J 213		CD 2 - R 262
	CD 6A - RA 19	VS1-0755-009	CD 2 - J 214		CD 2 - R 263
	CD 6A - RA 24		CD 4 - J1301		CD 2 - R 269
VR7-5850-223	CD 6 - RA 3	VS1-0755-011	CD 2 - J 205		CD 2 - R 277
	CD 6 - RA 4	VS1-1028-004	CDF1 - J 931		CD 2 - R 278
	CD 6 - RA 5	VS1-1029-002	CD 3 - J1203		CD 2 - R 283
	CD 6 - RA 6		CD 3 - J1204		CD 2 - R 284
	CD 6 - RA 9		CDD1 - J2003		CD 2 - R 285
	CD 6 - RA 10		CDD1 - J2009		CD 2 - R 286
	CD 6 - RA 13		CDR1 - J 206		CD 2 - R 287
	CD 6 - RA 15	VS1-1029-003	CD 3 - J1205		CD 2 - R 356
	CD 6 - RA 18		CD 3 - J1206		CD 2 - R 395
	CD 6 - RA 22		CDD1 - J2006		CD 2 - R 396
	CD 6 - RA 25	VS1-1029-004	CDD1 - J2008		CD 2 - R 397
	CD 6 - RA 27	VS1-1029-005	CD 5 - J1601		CD 2 - R 431
	CD 6A - RA 3	VS1-1029-006	CDD1 - J2007		CD 2 - R 463
	CD 6A - RA 4		CDR1 - J 204		CD 2 - R 477
	CD 6A - RA 5	VS1-1029-010	CDR1 - J 207		CD 2 - R 479
	CD 6A - RA 6	VS1-1029-011	CDR1 - J 208		CD 2 - R 480
	CD 6A - RA 9	VS1-5031-020	CD 2 - J 219		CD 2 - R 481
	CD 6A - RA 10	VS1-5046-008	CDD1 - J2001		CD 2 - R 482
	CD 6A - RA 13	VS1-5450-002	CD 4 - J1302		CD 2 - R 496
	CD 6A - RA 15	VS1-5450-003	CD 2 - J 208		CD 2 - R 502
	CD 6A - RA 18		CD 2 - J 216		CD 2 - R 503
	CD 6A - RA 22	VS1-5450-004	CD 4 - J1304		CD 2 - R 504
	CD 6A - RA 25	VS1-5450-007	CD 2 - J 212		CD 2 - R 505
	CD 6A - RA 27	VS1-5450-013	CD 2 - J 217		CD 2 - R 506
VR7-7230-101	CD 6 - RA 14	VS1-5451-002	CDD1 - J2002		CD 2 - R 507
	CD 6 - RA 17	VS1-5451-003	CDR1 - J 210		CD 2 - R 508
	CD 6A - RA 14		CDR2 - J 601		CDD1 - R2062
	CD 6A - RA 17	VS1-5451-004	CD 3 - J1202		CDV1 - R 148
VR7-7230-102	CD 6 - RA 7		CDD1 - J2004		CDV1 - R 149
	CD 6 - RA 8		CDF1 - J 932		CDV1 - R 150
	CD 6 - RA 23		CDR1 - J 205		CDV1 - R 151
	CD 6A - RA 7	VS1-5451-005	CDR1 - J 209	VV1-7118-102	CD 2 - R 202
	CD 6A - RA 8		CDR3 - J 701		CD 2 - R 215
	CD 6A - RA 23	VS1-5451-006	CDD1 - J2005		CD 2 - R 222
VR7-7230-103	CD 6 - RA 1	VS1-5517-002	CD 1 - J1402		CD 2 - R 223
	CD 6 - RA 12		CD 4 - J1303		CD 2 - R 237
	CD 6 - RA 30	VS1-5517-003	CD 2 - J 206		CD 2 - R 242
	CD 6 - RA 32		CD 2 - J 210		CD 2 - R 246
	CD 6 - RA 34		CDR1 - J 211		CD 2 - R 261
	CD 6A - RA 1	VS1-5517-004	CD 2 - J 225		CD 2 - R 265
	CD 6A - RA 12	VS1-5517-005	CD 2 - J 209		CD 2 - R 267
	CD 6A - RA 30	VS1-5517-006	CD 2 - J 203		CD 2 - R 271
	CD 6A - RA 32		CD 2 - J 222		CD 2 - R 273

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VV1-7118-102	CD 2 - R 275	VV1-7118-103	CD 2 - R 266	VV1-7118-273	CD 2 - R 468
	CD 2 - R 276		CD 2 - R 378		CD 2 - R 472
	CD 2 - R 293		CD 2 - R 379		CD 2 - R 474
	CD 2 - R 295		CD 2 - R 380		CD 2 - R 491
	CD 2 - R 297		CD 2 - R 381		CD 2 - R 492
	CD 2 - R 299		CD 2 - R 450		CDD1 - R2006
	CD 2 - R 301		CD 2 - R 451		CDD1 - R2018
	CD 2 - R 303		CD 2 - R 452		CDD1 - R2019
	CD 2 - R 305		CD 2 - R 453		CDD1 - R2036
	CD 2 - R 307		CD 2 - R 454		CDD1 - R2051
	CD 2 - R 309		CD 2 - R 455	VV1-7118-332	CD 2 - R 254
	CD 2 - R 311		CD 2 - R 456		CD 2 - R 288
	CD 2 - R 313		CD 2 - R 457		CD 2 - R 289
	CD 2 - R 315		CD 2 - R 458		CD 2 - R 290
	CD 2 - R 317		CD 2 - R 459		CD 2 - R 291
	CD 2 - R 319		CD 2 - R 460		CD 2 - R 300
	CD 2 - R 321		CD 2 - R 464		CD 2 - R 302
	CD 2 - R 323		CD 2 - R 465		CD 2 - R 304
	CD 2 - R 325		CD 2 - R 466		CD 2 - R 306
	CD 2 - R 327		CD 2 - R 469		CD 2 - R 308
	CD 2 - R 329		CD 2 - R 470		CD 2 - R 310
	CD 2 - R 331		CDD1 - R2004		CD 2 - R 312
	CD 2 - R 344		CDD1 - R2037		CD 2 - R 314
	CD 2 - R 350		CDD1 - R2038		CD 2 - R 335
	CD 2 - R 352		CDD1 - R2039		CD 2 - R 336
	CD 2 - R 358		CDD1 - R2040		CD 2 - R 343
	CD 2 - R 360		CDD1 - R2063		CD 2 - R 365
	CD 2 - R 362		CDD1 - R2064		CD 2 - R 367
	CD 2 - R 364		CDD1 - R2065		CD 2 - R 371
	CD 2 - R 366		CDD1 - R2066		CD 2 - R 500
	CD 2 - R 372		CDV1 - R 113		CD 2 - R 501
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	CD 2 - R 376		CDV1 - R 115		CDD1 - R2012
	CD 2 - R 377		CDV1 - R 116		CDD1 - R2013
	CD 2 - R 389		CDV1 - R 117		CDD1 - R2014
	CD 2 - R 391		CDV1 - R 118		CDD1 - R2022
	CD 2 - R 399		CDV1 - R 119		CDD1 - R2024
	CD 2 - R 402		CDV1 - R 120		CDD1 - R2026
	CD 2 - R 405		CDV1 - R 121		CDD1 - R2049
	CD 2 - R 417		CDV1 - R 122		CDD1 - R2067
	CD 2 - R 421		CDV1 - R 135		CDD1 - R2068
	CD 2 - R 423		CDV1 - R 136		CDV1 - R 101
	CD 2 - R 467		CDV1 - R 137		CDV1 - R 102
	CD 2 - R 471		CDV1 - R 138		CDV1 - R 107
	CD 2 - R 473		CDV1 - R 140		CDV1 - R 139
	CD 2 - R 487		CDV1 - R 145		CDV1 - R 142
	CD 2 - R 490		CDV1 - R 146		CDV1 - R 143
	CDD1 - R2015		CDV1 - R 147	VV1-7118-392	CDD1 - R2005
	CDD1 - R2016	VV1-7118-112	CD 2 - R 408	VV1-7118-395	CD 2 - R 220
	CDD1 - R2017		CD 2 - R 411		CD 2 - R 221
	CDD1 - R2041	VV1-7118-151	CD 2 - R 410	VV1-7118-471	CD 2 - R 268
	CDD1 - R2042	VV1-7118-152	CDV1 - R 156	VV1-7118-472	CD 2 - R 258
	CDD1 - R2050	VV1-7118-201	CDV1 - R 157		CD 2 - R 272
	CDD1 - R2060	VV1-7118-203	CD 2 - R 226		CD 2 - R 351
	CDD1 - R2061		CD 2 - R 227		CD 2 - R 355
	CDV1 - R 123	VV1-7118-222	CD 2 - R 219		CD 2 - R 486
	CDV1 - R 124	VV1-7118-273	CD 2 - R 292		CD 2 - R 488
	CDV1 - R 125		CD 2 - R 294		CD 2 - R 489
	CDV1 - R 126		CD 2 - R 296		CDD1 - R2020
	CDV1 - R 127		CD 2 - R 298		CDD1 - R2048
	CDV1 - R 128		CD 2 - R 316		CDV1 - R 106
	CDV1 - R 129		CD 2 - R 318		CDV1 - R 133
	CDV1 - R 130		CD 2 - R 320		CDV1 - R 152
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	CDV1 - R 132		CD 2 - R 324		CDV1 - R 154
	CDV1 - R 134		CD 2 - R 326		CDV1 - R 155
	CDV1 - R 141		CD 2 - R 328	VV1-7118-473	CD 2 - R 401
	CDV1 - R 144		CD 2 - R 330		CD 2 - R 409
VV1-7118-103	CD 2 - R 201		CD 2 - R 349	VV1-7118-563	CD 2 - R 383
	CD 2 - R 203		CD 2 - R 357		CD 2 - R 385
	CD 2 - R 204		CD 2 - R 359		CDD1 - R2043
	CD 2 - R 205		CD 2 - R 361		CDD1 - R2045
	CD 2 - R 213		CD 2 - R 363	VV1-7118-682	CDD1 - R2007
	CD 2 - R 216		CD 2 - R 373		CDD1 - R2008
	CD 2 - R 217		CD 2 - R 375		CDD1 - R2009
	CD 2 - R 236		CD 2 - R 390		CDD1 - R2010
	CD 2 - R 238		CD 2 - R 392		CDD1 - R2021
	CD 2 - R 243		CD 2 - R 398		CDD1 - R2023
	CD 2 - R 247		CD 2 - R 414		CDD1 - R2025
	CD 2 - R 253		CD 2 - R 418	VV1-7188-101	CD 6 - R 12
	CD 2 - R 255		CD 2 - R 422		CD 6 - R 13
	CD 2 - R 256		CD 2 - R 424		CD 6 - R 27
	CD 2 - R 257		CD 2 - R 427		CD 6 - R 29
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	CD 2 - R 264		CD 2 - R 429		CD 6 - R 33

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	CD 6A - R 102
VV1-7188-102	CD 6 - R 28
	CD 6 - R 30
	CD 6 - R 32
	CD 6 - R 46
	CD 6 - R 104
	CD 6A - R 28
	CD 6A - R 30
	CD 6A - R 32
	CD 6A - R 46
	CD 6A - R 104
VV1-7188-103	CD 6 - R 6
	CD 6 - R 8
	CD 6 - R 9
	CD 6 - R 16
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	CD 6A - R 8
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	CD 6A - R 16
	CD 6A - R 17
	CD 6A - R 42
	CD 6A - R 45
	CD 6A - R 47
	CD 6A - R 48
VV1-7188-220	CD 6 - R 7
	CD 6 - R 10
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	CD 6 - R 40
	CD 6A - R 7
	CD 6A - R 10
	CD 6A - R 21
	CD 6A - R 35
	CD 6A - R 36
	CD 6A - R 39
	CD 6A - R 40
VV1-7188-221	CD 6 - R 38
	CD 6A - R 38
VV1-7188-222	CD 6 - R 26
	CD 6A - R 26
VV1-7188-512	CD 6 - R 11
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	CD 6A - R 11
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	CD 6A - R 23
	CD 6A - R 24
	CD 6A - R 25
	CD 6A - R 34
	CD 6A - R 103
VV1-7188-680	CD 6 - R 37
	CD 6A - R 37
VW4-2027-104	CD 2 - C 201
	CD 2 - C 207
	CD 2 - C 212
	CD 2 - C 213
	CD 2 - C 214
	CD 2 - C 215
	CD 2 - C 218
	CD 2 - C 221
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	CD 2 - C 238

PART NUMBER	FIGURE & KEY NO.
VW4-2027-104	CD 2 - C 258
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	CD 6 - C 72
	CD 6 - C 73
	CD 6 - C 74
	CD 6 - C 76
	CD 6 - C 101
	CD 6 - C 102
	CD 6 - C 103
	CD 6 - C 104
	CD 6A - C 2
	CD 6A - C 5
	CD 6A - C 10
	CD 6A - C 11
	CD 6A - C 12
	CD 6A - C 13
	CD 6A - C 14
	CD 6A - C 15
	CD 6A - C 18
	CD 6A - C 19
	CD 6A - C 20
	CD 6A - C 21
	CD 6A - C 22
	CD 6A - C 24
	CD 6A - C 27
	CD 6A - C 28
	CD 6A - C 29
	CD 6A - C 30
	CD 6A - C 31
	CD 6A - C 32
	CD 6A - C 33
	CD 6A - C 34
	CD 6A - C 36
	CD 6A - C 37
	CD 6A - C 38

PART NUMBER	FIGURE & KEY NO.
VW4-2027-104	CD 6A - C 39
	CD 6A - C 40
	CD 6A - C 41
	CD 6A - C 42
	CD 6A - C 43
	CD 6A - C 44
	CD 6A - C 45
	CD 6A - C 46
	CD 6A - C 50
	CD 6A - C 54
	CD 6A - C 56
	CD 6A - C 58
	CD 6A - C 59
	CD 6A - C 60
	CD 6A - C 61
	CD 6A - C 62
	CD 6A - C 63
	CD 6A - C 64
	CD 6A - C 66
	CD 6A - C 67
	CD 6A - C 68
	CD 6A - C 69
	CD 6A - C 70
	CD 6A - C 71
	CD 6A - C 72
	CD 6A - C 73
	CD 6A - C 74
	CD 6A - C 76
	CD 6A - C 101
	CD 6A - C 102
	CD 6A - C 103
	CD 6A - C 104
VW4-2037-104	CD 2 - C 211
	CD 2 - C 222
	CD 2 - C 223
	CD 2 - C 226
	CD 2 - C 240
	CD 2 - C 241
	CD 2 - C 262
	CD 2 - C 287
	CDV1 - C 102
	CDV1 - C 106
	CDV1 - C 107
	CDV1 - C 108
	CDV1 - C 109
	CDV1 - C 110
	CDV1 - C 112
	CDV1 - C 113
	CDV1 - C 114
	CDV1 - C 115
	CDV1 - C 116
	CDV1 - C 117
	CDV1 - C 118
	CDV1 - C 119
	CDV1 - C 120
VW4-2234-100	CD 6 - C 9
	CD 6 - C 53
	CD 6A - C 9
	CD 6A - C 53
VW4-2234-101	CD 2 - C 209
	CD 2 - C 210
	CD 2 - C 290
VW4-2234-102	CD 2 - C 261
	CD 2 - C 269
	CD 2 - C 270
	CD 2 - C 271
	CD 2 - C 272
	CD 2 - C 273
	CD 2 - C 274
	CD 2 - C 275
	CD 2 - C 276
	CD 2 - C 277
	CD 2 - C 278
	CD 2 - C 279
	CD 6 - C 47
	CD 6 - C 48
	CD 6A - C 47
	CD 6A - C 48
VW4-2234-150	CDV1 - C 104
	CDV1 - C 105
VW4-2234-220	CD 2 - C 216
	CD 2 - C 217
	CD 6 - C 23
	CD 6 - C 25
	CD 6 - C 26

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PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.
VW4-2234-220	CD 6A- C 23	WA1-0972-000	CD 2 - D 203	WA2-0833-000	CD 2 - Q 220
	CD 6A- C 25		CD 2 - D 204		CD 2 - Q 224
	CD 6A- C 26		CD 2 - D 205		CD 2 - Q 238
VW4-2234-330	CD 6 - C 49		CD 2 - D 206		CDV1 - Q 101
	CD 6 - C 51		CD 2 - D 207	WA2-0935-000	CDD1 - Q2006
	CD 6 - C 52		CDD1 - D2001	WA2-0991-000	CDD1 - Q2007
	CD 6A- C 49		CDD1 - D2002		CDD1 - Q2008
	CD 6A- C 51		CDD1 - D2003		CDD1 - Q2009
	CD 6A- C 52		CDD1 - D2004		CDD1 - Q2010
VW4-2234-470	CD 2 - C 281		CDD1 - D2005	WA2-1004-000	CDV1 - Q 102
VW4-2234-680	CD 2 - C 263		CDD1 - D2006	WA2-1115-000	CD 2 - Q 208
	CD 2 - C 280		CDD1 - D2007		CD 2 - Q 212
	CD 2 - C 282		CDR1 - D 201		CD 2 - Q 213
	CD 2 - C 283		CDR1 - D 202		CD 2 - Q 214
	CD 2 - C 284		CDR1 - D 203		CD 2 - Q 215
	CD 2 - C 285		CDR1 - D 204		CD 2 - Q 223
	CD 2 - C 286	WA1-5111-000	CD 6 - D 7	WA2-1116-000	CDD1 - Q2011
	CD 2 - C 289		CD 6A - D 7		CDD1 - Q2013
	CD 2 - C 291	WA1-5365-000	CD 2 - ZD201		CDD1 - Q2015
VW4-2234-821	CD 2 - C 228		CD 2 - ZD202		CDR1 - Q 201
	CD 2 - C 229		CD 2 - ZD203		CDR1 - Q 203
	CD 2 - C 230		CD 2 - ZD204		CDR1 - Q 204
	CD 2 - C 231		CD 2 - ZD205		CDR1 - Q 205
	CDD1 - C2008		CD 2 - ZD206	WA2-1507-000	CDD1 - Q2003
	CDD1 - C2009		CD 2 - ZD207		CDD1 - Q2004
	CDD1 - C2010		CD 2 - ZD208		CDD1 - Q2005
	CDD1 - C2012	WA1-5410-000	CD 2 - D 221		CDD1 - Q2012
VW4-2634-102	CDD1 - C2005		CD 2 - D 222		CDD1 - Q2014
VW4-2635-300	CDD1 - C2002		CD 2 - D 223		CDD1 - Q2016
	CDD1 - C2003		CD 2 - D 224	WA2-5746-000	CD 2 - Q 236
VW4-2835-101	CDD1 - C2023		CD 2 - D 225	WA2-5763-000	CD 2 - Q 225
	CDD1 - C2024		CD 2 - D 226		CD 2 - Q 226
VW4-2835-102	CD 2 - C 267		CD 2 - D 227		CD 2 - Q 227
VW4-2835-103	CD 2 - C 236		CD 2 - D 228		CD 2 - Q 233
	CD 2 - C 242		CD 2 - D 229	WA2-5858-00V	CD 6 - Q 1
	CD 2 - C 243		CD 2 - D 230		CD 6A - Q 1
	CD 2 - C 244		CD 2 - D 231	WA2-6232-000	CDV1 - Q 103
	CD 2 - C 245		CD 2 - D 232	WA3-0002-000	CDR1 - IC203
	CD 2 - C 246		CD 2 - D 233	WA3-0132-000	CDR1 - IC205
	CD 2 - C 247		CD 2 - D 234		CDR1 - IC206
	CD 2 - C 248		CD 2 - D 235	WA3-1227-000	CDV1 - IC103
	CD 2 - C 249		CD 2 - D 236	WA3-2950-000	CDV1 - IC104
	CD 2 - C 250		CD 2 - D 237		CDV1 - IC105
	CD 2 - C 251		CD 2 - D 238		CDV1 - IC106
	CD 2 - C 252		CD 2 - D 239	WA3-2956-000	CDV1 - IC107
	CD 2 - C 253		CD 2 - D 240	WA3-2968-000	CDV1 - IC108
	CD 2 - C 254		CD 2 - D 241	WA3-3486-000	CDV1 - IC102
	CD 2 - C 255		CDD1 - D2020	WA3-5516-00V	CD 6 - IC 25
	CD 2 - C 256		CDD1 - D2021		CD 6A - IC 25
	CD 2 - C 257		CDD1 - D2022	WA3-5521-00V	CD 6 - IC 4
	CD 2 - C 264		CDD1 - D2023		CD 6A - IC 4
	CD 2 - C 266		CDD1 - D2024	WA3-5526-00V	CD 6 - IC 30
	CDD1 - C2019		CDD1 - D2025		CD 6A - IC 30
	CDD1 - C2020		CDF1 - D 931	WA3-7213-00V	CD 6 - IC 11
	CDD1 - C2021		CDF1 - D 932		CD 6A - IC 11
	CDD1 - C2022		CDF1 - D 933	WA3-7302-000	CD 6 - IC 8
VW4-2835-222	CDV1 - C 101		CDF1 - D 934		CD 6 - IC 20
	CDV1 - C 103		CDR1 - D 209		CD 6A - IC 8
	CDV1 - C 111		CDR1 - D 210		CD 6A - IC 20
VW4-2835-331	CD 2 - C 224		CDR1 - D 211	WA3-7303-00V	CD 6 - IC 5
VW4-2835-471	CD 2 - C 204		CDR1 - D 212		CD 6A - IC 5
	CD 2 - C 205		CDR1 - D 213	WA3-8513-000	CDV1 - IC110
	CD 2 - C 206		CDR1 - D 214	WA3-8575-000	CDV1 - IC101
	CD 2 - C 208		CDR1 - D 215	WA3-8608-00V	CD 6 - IC 33
	CD 2 - C 265		CDR1 - D 216		CD 6A - IC 33
WA1-0507-000	CD 6 - D 6		CDR1 - D 217	WA3-8609-00V	CD 6 - IC 31
	CD 6A- D 6		CDR1 - D 218		CD 6A - IC 31
WA1-0777-000	CD 2 - D 208	WA1-6045-00V	CD 6 - D 8	WA3-8610-00V	CD 6 - IC 14
	CD 2 - D 209		CD 6A - D 8		CD 6 - IC 15
	CD 2 - D 210	WA2-0124-000	CD 2 - Q 216		CD 6A - IC 14
	CD 2 - D 211		CD 2 - Q 218		CD 6A - IC 15
	CDD1 - D2008		CD 2 - Q 221	WA3-8619-00V	CD 6 - IC101
	CDD1 - D2009		CD 2 - Q 240		CD 6A - IC101
	CDD1 - D2010		CD 2 - Q 241	WA4-0135-000	CDF1 - Q 931
	CDD1 - D2011	WA2-0135-000	CD 2 - Q 235	WA4-0672-000	CDD1 - IC2001
	CDF1 - D 935		CD 2 - Q 239	WA4-0971-000	CD 2 - IC202
	CDF1 - D 936	WA2-0135-000	CDR1 - Q 209	WA4-1035-000	CD 2 - IC206
	CDF1 - D 937	WA2-0236-000	CDR1 - Q 208		CD 2 - IC207
	CDF1 - D 938	WA2-0317-000	CD 2 - Q 217		CDD1 - IC2020
	CDF1 - D 939		CD 2 - Q 219		CDD1 - IC2021
	CDF1 - D 940		CD 2 - Q 222		CDF1 - IC933
	CDF1 - D 941		CD 2 - Q 242		CDF1 - IC934
	CDF1 - D 942	WA2-0796-000	CDR1 - Q 202		CDR1 - IC207
WA1-0827-000	CDD1 - D2012		CDR1 - Q 206		CDR1 - IC208
WA1-0972-000	CD 2 - D 202		CDR1 - Q 207	WA4-1189-000	CDD1 - Q2022

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PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.
WA4-5456-000	CDF1 - Q 932	WK2-0555-000	CDF1 - X 932		
WA4-5534-000	CDR1 - IC202	WK2-5091-000	CDR1 - X 201		
WA4-5587-000	CD 2 - IC204	WK2-5767-00V	CD 6 - X 3		
	CDV1 - IC111		CD 6A - X 3		
WA4-6571-000	CD 6 - IC 34	WS1-5509-000	CD 6 - J 11		
	CD 6A - IC 34		CD 6A - J 11		
WA4-6791-00V	CD 6 - IC 28	WS1-5594-00V	CD 6 - J 10		
	CD 6A - IC 28		CD 6A - J 10		
WA7-0032-00V	CD 6 - IC 29	WS1-5612-000	CDR1 - J 202		
	CD 6A - IC 29		CDV1 - J 102		
WA7-0033-00V	CD 6 - IC 13	WS1-5613-000	CDR1 - J 201		
	CD 6 - IC 16	WS3-0402-000	CD 2 - J 204		
	CD 6 - IC 18	WT1-0122-000	CDF1 - CP 1		
	CD 6 - IC 23		CDF1 - CP 2		
	CD 6A - IC 13		CDF1 - CP 3		
	CD 6A - IC 16	WT1-0337-000	CDR1 - CP201		
	CD 6A - IC 18		CDR1 - CP202		
	CD 6A - IC 23	WT1-5412-000	CDV1 - JP101S		
WA7-0034-00V	CD 6 - IC 12	X65-7301-000	CDR1 - IC204		
	CD 6 - IC 17				
	CD 6 - IC 19				
	CD 6 - IC 22				
	CD 6A - IC 12				
	CD 6A - IC 17				
	CD 6A - IC 19				
	CD 6A - IC 22				
WA7-0035-00V	CD 6 - IC 6				
	CD 6A - IC 6				
WA7-0036-00V	CD 6 - IC 24				
	CD 6A - IC 24				
WA7-0037-00V	CD 6 - IC 7				
	CD 6 - IC 9				
	CD 6A - IC 7				
	CD 6A - IC 9				
WA7-0038-00V	CD 6 - IC 26				
	CD 6 - IC 27				
	CD 6A - IC 26				
	CD 6A - IC 27				
WA7-0039-00V	CD 6 - IC 32				
	CD 6A - IC 32				
WA7-0115-00V	CD 6 - IC102				
	CD 6A - IC102				
WA7-0116-00V	CD 6 - IC103				
	CD 6A - IC103				
WA9-0224-000	CDV1 - IC109S				
WA9-5232-000	CD 6 - J 3				
	CD 6 - J 4				
	CD 6 - J 5				
	CD 6A - J 3				
	CD 6A - J 4				
	CD 6A - J 5				
WC2-0100-000	CD 5 - SW1601				
	CD 5 - SW1602				
	CD 5 - SW1603				
	CD 5 - SW1604				
	CDR2 - SW601				
	CDR2 - SW602				
	CDR3 - SW701				
	CDR3 - SW702				
	CDR3 - SW703				
	CDR3 - SW704				
WC2-0141-000	CD 2 - SW201				
WC8-0170-000	CDV1 - SW101				
WC8-5060-000	CD 1 - SW1401				
WD1-0272-000	CDR1 - FU201				
WE8-5209-000	CD 2 - L 201				
	CD 2 - L 203				
	CD 2 - L 204				
	CD 2 - L 205				
WG8-0173-020	CD 1 - PS1401				
	CD 1 - PS1402				
	CD 1 - PS1403				
	CD 3 - PS1201				
	CD 3 - PS1202				
	CD 3 - PS1203				
	CD 3 - PS1204				
	CD 3 - PS1205				
	CD 3 - PS1206				
	CD 3 - PS1207				
	CD 3 - PS1208				
	CD 4 - PS2301				
	CD 4 - PS2302				
	CDF1 - PS931				
WK2-0159-000	CDD1 - X2001				
WK2-0333-000	CDV1 - X 101				

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B CIRCUIT REVISION CHART

NO.	CIRCUIT DIAGRAM NAME	REVISION
CD 1 - 2	SWITCH/SENSOR PCB ASS'Y	02
CD 2 - 3	DC CONTROLLER PCB ASS'Y	06
CD 2 - 4	DC CONTROLLER PCB ASS'Y	03
CD 2 - 5	DC CONTROLLER PCB ASS'Y	06
CD 2 - 6	DC CONTROLLER PCB ASS'Y	04
CD 2 - 7	DC CONTROLLER PCB ASS'Y	05
CD 2 - 8	DC CONTROLLER PCB ASS'Y	05
CD 2 - 9	DC CONTROLLER PCB ASS'Y	05
CD 2 - 10	DC CONTROLLER PCB ASS'Y	04
CD 3 - 2	PAPER PICK-UP PCB ASS'Y	03
CD 4 - 2	MULTI-PURPOSE TRAY PCB ASS'Y	02
CD 5 - 2	CASSETTE-SIZE SENSING PCB ASS'Y	02
CD 6 - 2	VIDEO CONTROLLER PCB ASS'Y (100-120V)	01
CD 6 - 3	VIDEO CONTROLLER PCB ASS'Y (100-120V)	02
CD 6 - 4	VIDEO CONTROLLER PCB ASS'Y (100-120V)	03
CD 6 - 5	VIDEO CONTROLLER PCB ASS'Y (100-120V)	02
CD 6 - 6	VIDEO CONTROLLER PCB ASS'Y (100-120V)	01
CD 6 - 7	VIDEO CONTROLLER PCB ASS'Y (100-120V)	03
CD 6 - 8	VIDEO CONTROLLER PCB ASS'Y (100-120V)	02
CD 6 - 9	VIDEO CONTROLLER PCB ASS'Y (100-120V)	02
CD 6 - 10	VIDEO CONTROLLER PCB ASS'Y (100-120V)	04
CD 6 - 11	VIDEO CONTROLLER PCB ASS'Y (100-120V)	01
CD 6A- 2	VIDEO CONTROLLER PCB ASS'Y (220-240V)	02
CD 6A- 3	VIDEO CONTROLLER PCB ASS'Y (220-240V)	02
CD 6A- 4	VIDEO CONTROLLER PCB ASS'Y (220-240V)	03
CD 6A- 5	VIDEO CONTROLLER PCB ASS'Y (220-240V)	02
CD 6A- 6	VIDEO CONTROLLER PCB ASS'Y (220-240V)	01
CD 6A- 7	VIDEO CONTROLLER PCB ASS'Y (220-240V)	03
CD 6A- 8	VIDEO CONTROLLER PCB ASS'Y (220-240V)	02
CD 6A- 9	VIDEO CONTROLLER PCB ASS'Y (220-240V)	02

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NO.	CIRCUIT DIAGRAM NAME	REVISION
CD 6A- 10	VIDEO CONTROLLER PCB ASS'Y (220-240V)	04
CD 6A- 11	VIDEO CONTROLLER PCB ASS'Y (220-240V)	01
CDD1- 2	DUPLEXING DRIVER PCB ASS'Y	02
CDD1- 3	DUPLEXING DRIVER PCB ASS'Y	02
CDF1- 2	ENVELOPE FEEDER PCB ASS'Y	02
CDR1- 2	PAPER DECK DRIVER PCB ASS'Y	04
CDR1- 3	PAPER DECK DRIVER PCB ASS'Y	04
CDR1- 4	PAPER DECK DRIVER PCB ASS'Y	04
CDR2- 2	PAPER SENSOR PCB ASS'Y	01
CDR3- 2	PAPER-SIZE SENSING PCB ASS'Y	01
CDV1- 2	OPTION CONTROLLER ASS'Y	01
CDV1- 3	OPTION CONTROLLER ASS'Y	01

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SERVICE INFORMATION

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MODEL :

LBP-2460

NO. : RAD-12E-0002
DATE: December 20, 1997

LOCATION

SUBJECT

Revision of the Parts Catalog for LBP-2460

Because of the many changes and corrections, the LBP-2460 Parts Catalog has been completely revised

Please discard the old Parts Catalog.

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REVISION PAGE LIST

R : Replacement,
S : Supplement,
D : Destroyed,

Model : LBP-2460

FIG-URE	PAGE	REVISION								FIG-URE	PAGE	REVISION							
		Apr. 1997	Dec. 1997									Apr. 1997	Dec. 1997						
	i	0	1R							152	1	0	→						
	ii	0	→								2	0	→						
	iii	0	→																
	iv	0	→							152A	1	0	→						
	v	0	→								2	0	1R						
	vi	0	→																
	vii	0	→							153	1	0	→						
	viii	0	→																
										250	1	0	→						
A	1	0	→								2	0	1R						
	2	0	→																
										300	1	0	→						
100	1	0	→								2	0	1R						
	2	0	1R								3	0	→						
101	1	0	→							301	1	0	→						
	2	0	→								2	0	1R						
											3	0	→						
102	1	0	1R																
	2	0	1R							310	1	0	1R						
											2	0	1R						
103	1	0	1R								3	0	1R						
	2	0	1R								4	0	1R						
											5	0	→						
104	1	0	→								6	0	1R						
	2	0	→																
										320	1	0	→						
141	1	0	→								2	0	→						
151	1	0	1R							330	1	0	→						
											2	0	→						

REVISION PAGE LIST

R : Replacement,
S : Supplement,
D : Destroyed,

Model : LBP-2460

FIG-URE	PAGE	REVISION								FIG-URE	PAGE	REVISION							
		Apr. 1997	Dec. 1997									Apr. 1997	Dec. 1997						
340	1	0	→							FA	1	0	→						
	2	0	→																
	3	0	→							F10	1	0	→						
											2	0	→						
341	1	0	→																
	2	0	→							F11	1	0	→						
											2	0	→						
350	1	0	→								3	0	→						
	2	0	1R								4	0	→						
351	1	0	1R							F90	1	0	→						
	2	0	→																
										R	i	0	→						
810	1	0	1R																
	2	0	→							RA	1	0	→						
	3	0	1R																
	4	0	1R							R10	1	0	→						
											2	0	→						
900	1	0	→								3	0	→						
											4	0	→						
D	i	0	→																
										R15	1	0	1R						
D10	1	0	→								2	0	→						
	2	0	→								3	0	→						
	3	0	1R								4	0	1R						
	4	0	→																
										R20	1	0	→						
D90	1	0	→								2	0	→						
F	i	0	→																

REVISION PAGE LIST

R : Replacement,
S : Supplement,
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Model : LBP-2460

FIG-URE	PAGE	REVISION								FIG-URE	PAGE	REVISION							
		Apr. 1997	Dec. 1997																
R40	1	0	1R																
	2	0	1R																
	3	0	1R																
R50	1	0	→																
	2	0	→																
	3	0	→																
R90	1	0	→																
V	i	0	→																
V10	1	0	1R																
V90	1	0	1R																
W	i	0	→																
W10	1	0	→																
B	1	0	1R																
	2	0	1R																
	3	0	1R																
	4	0	1R																
	5	0	1R																

LBP-2460

PARTS CATALOG

REVISION 1

Canon

DEC. 1997

RY8-31AM-010

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PREFACE

This Parts Catalog contains listings of parts used in the LBP-2460, the duplex unit, the envelope feeder, the paper deck, the option controller, and the hard disk.
Diagrams are provided with the listings to aid the service technician in clearly identifying the item to be orderd.

Whenever ordering parts, consult this Parts Catalog for all of the information pertaining to each item. Be sure to include in the Parts Request the full item description, the item part number, and the quantity. The parts catalog may be revised if there is significant product modification. For minor product

Canon Inc.

Peripheral Products Quality Advancement Div.
Peripheral Products Technical Documentation Dept
5-1, Hakusan 7-chome, Toride-shi, Ibaraki 302, Japan

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Use of this manual should be strictly supervised to avoid disclosure of confidential information.

LIST OF ORDER AND SERIAL NUMBERS

NAME	REMARKS	ORDER No.	SERIAL No.
LBP-2460	100-120V 50/60Hz 600DPI 220-240V 50Hz 600DPI	R76-0094 R76-0098	JHT00001- KJM00001-
CASSETTE		R77-0013 R77-0014	
DUPLEX UNIT		R77-1001	LFA00001-
ENVELOPE FEEDER		R77-1008	LDP00001-
PAPER DECK		R77-1032	LFK00001-
OPTION CONTROLLER		R77-1027	
HARD DISK		R03-0170	

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HOW TO USE PARTS LISTS

Assembly Location Diagrams. These diagrams show the locations of major assemblies of the machine. Their names are identified in rectangular boxes. Below each box is the number of the Figure which shows an exploded view of the assembly.

Finding a Parts Number. Refer to the Assembly Location Diagrams and find the Figure Number of the assembly of interest. Turn to the page(s), locate the part on the exploded view, and find its Key Number. Refer to the Parts List on the page facing the exploded view and find the Key Number, Part Number and quantity required for your type of machine.

Note : While looking for a Part Number, pay particular attention to the voltage listed in the SERIAL NUMBER/REMARKS columm to ensure that the Part Number selected is for your type of machine. Immediate shipping or action regarding the part depends on using its correct Part Number.

Parts List pages. The Parts List pages contain the following columns and information.

(1) Figure and Key Number column. The first column shows the Figure Number of the illustration corresponding to the Parts List, and the Key Number that identifies the part on the illustration.

(2) Part Number. The second column shows the Part Number for the part. This Number must be used when ordering replacement parts or assemblies described in the description column do not have a Part Number and are not stocked.

Note : The last three digits (suffix) of the Parts Number are called the Revision Number. The Revision Number is changed if the part is modified. Information regarding such changes will be provided by Service Information Bulletins. These Bulletins should be read carefully.

(3) Rank N. Parts marked"N"are service parts, but are not stock items. They are produced on a special-order basis.

(4) Quantity column. The quantity shown in this column is the number of parts used in the Figure. However, the quantity listed for an assembly indicates the number of that assembly per machine. The letters in this column indicate that the quantity of a parts is not specified, allowing the use of the number of parts needed for assembly and that the quantity cannot be mentioned clearly.

(5) Description column. The Description column lists the description that should be used when ordering the part.

(6) Serial Number/Remarks. When there are differences in the specifications of power suppply voltage, frequency, etc., the differences are described in words or indicated by one two or three letters in front of the serial number.

(Example)

Serial number ABC00001

↑

└ This is the descriptive indicator.

If a model modified and a part is no longer interchangeable, the serial number of machines for which the part can be used is shown in this column. If there is no indication the part can be used with all models.

Numerical Index. There is a Numerical Index at the end of this catalog; it lists in numerical order every Part Number contained in the Parts Lists. The Numerical Index contains the following columns and information.

(1) Part Number. The first column shows the Part Number.

(2) Figure and Key Number column. The second column lists the Figure and Key Number for each occurrence of the part in the illustrations.

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FIGURE A

ASSEMBLY LOCATION DIAGRAM(1/2)

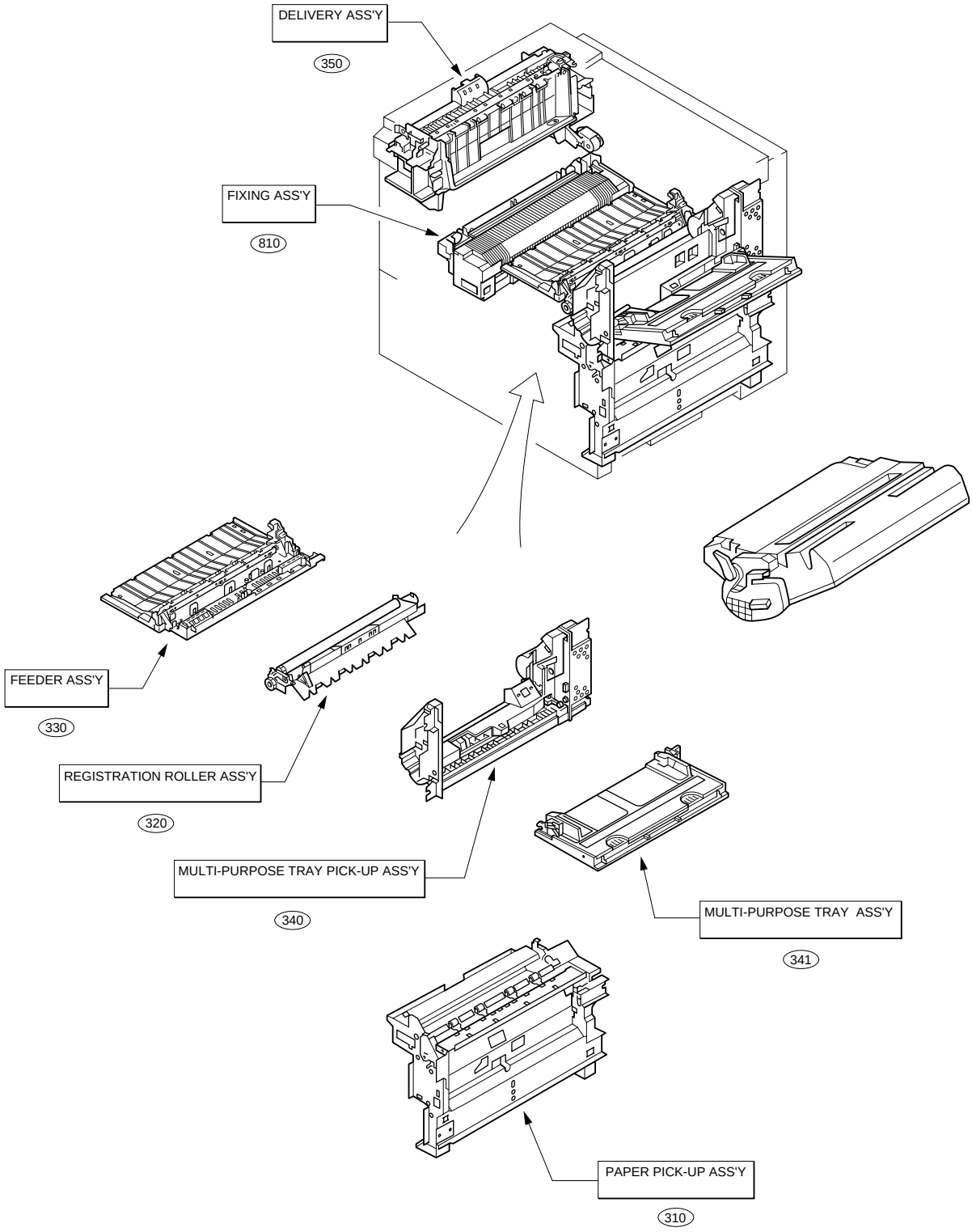

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FIGURE A

ASSEMBLY LOCATION DIAGRAM(2/2)

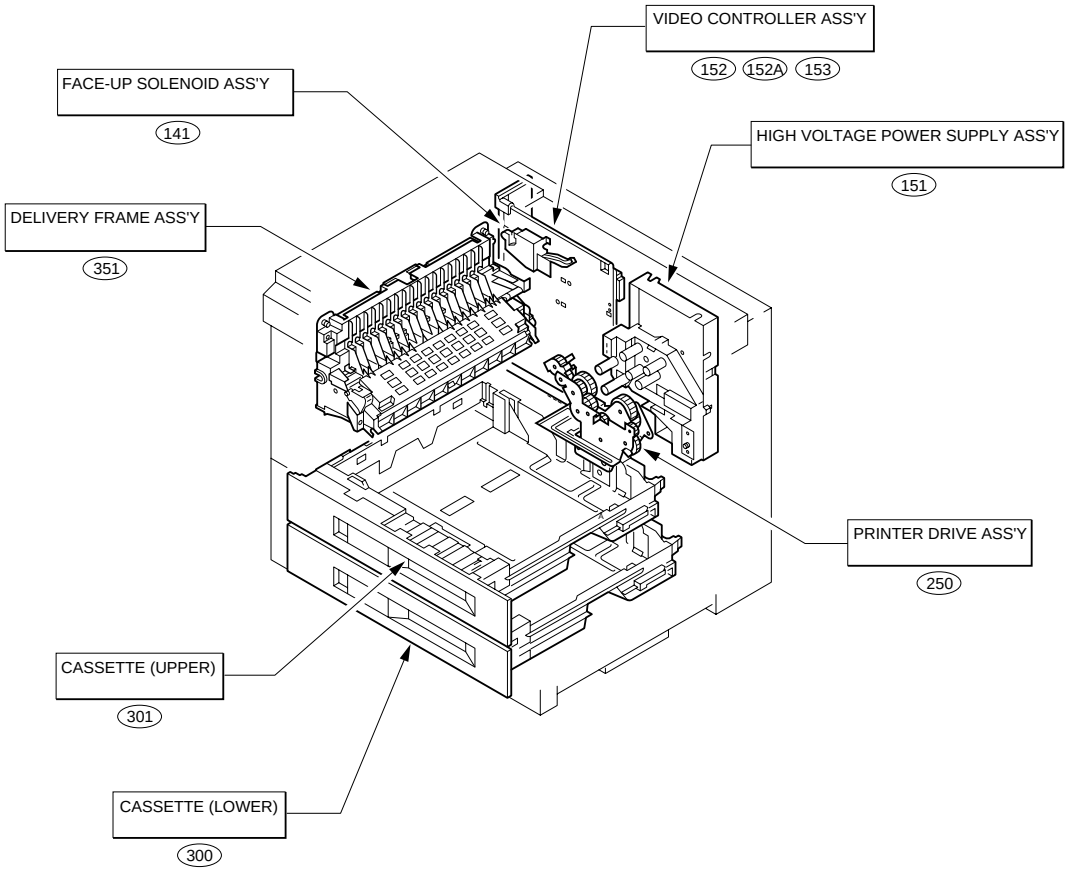

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FIGURE 100 EXTERNAL COVERS, PANELS, ETC.

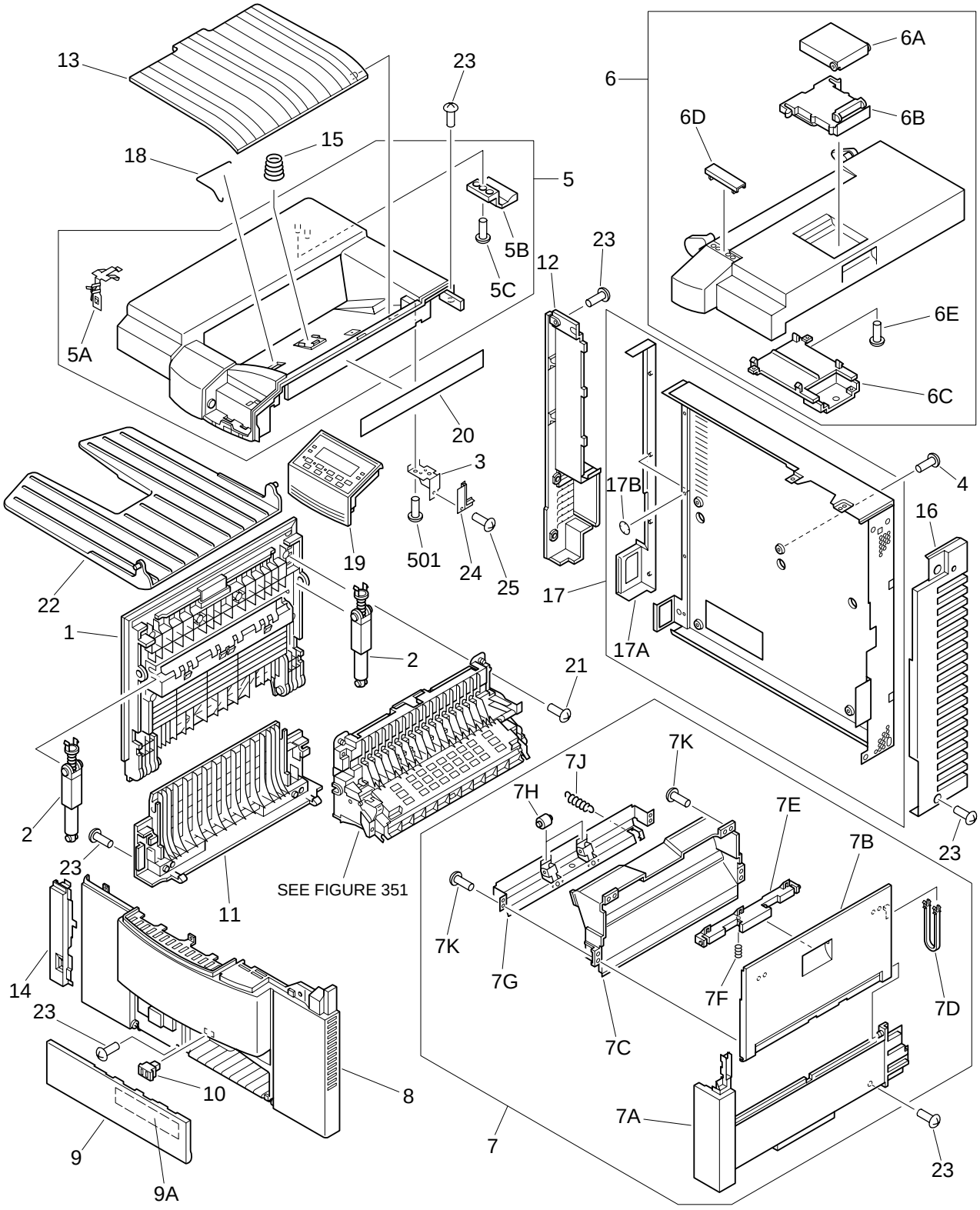

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
100 -	NPN		RF	EXTERNAL COVERS, PANELS, ETC.	
1	RB1-6967-000		1	COVER, DELIVERY	
2	RF5-2701-000		2	HINGE, STOPPER	
3	RB1-6507-000		1	PLATE, HINGE	
4	XA9-0267-000		6	SCREW, TP, M3X6	
5	RF5-1748-000		1	UPPER COVER ASS'Y	
5A	RB1-6936-000		1	PLATE, GROUNDING	
5B	RB1-6985-000		1	COVER, ELCTRICAL	
5C	XB4-7400-807		1	SCREW,TAPPING,TRUSS HEAD,M4X8	
6	RG5-2412-000		1	OPEN/CLOSE COVER, ASS'Y	
6A	RB1-6983-000		1	STOPPER, DELIVERY	
6B	RB1-6984-000		1	TRAY, DELIVERY	
6C	RB1-6935-000		1	TRAY, DELIVERY, SUB	
6D	RB1-6938-000		1	COVER, CRG	
6E	XB4-7400-809		4	SCREW,TAPPING,TRUSS HEAD,M4X8	
7	RG5-2413-000		1	COVER ASS'Y	
7A	RB1-6973-000		1	COVER, RIGHT	
7B	RB1-6974-000		1	COVER, OPEN/CLOSE, RIGHT	
7C	RB1-6975-000		1	GUIDE, COVER	
7D	RB1-6484-000		1	STOPPER, OPEN/CLOSE	
7E	RB1-6976-000		1	LEVER	
7F	RB1-6486-000		1	SPRING, COMPRESSION	
7G	RB1-6487-000		1	PLATE, GUIDE	
7H	RB1-6488-000		2	ROLLER	
7J	RS5-2494-000		1	SPRING, TENSION	
7K	XB4-7400-807		4	SCREW,TAPPING,TRUSS HEAD,M4X8	
8	RB1-7079-000		1	COVER, FRONT	
9	RF5-1438-000		1	COVER, FRONT, SUB	
9A	RS5-8677-000		1	LABEL, JAM REMOVAL	
10	XZ9-0379-000		1	LATCH	
11	RB1-6972-000		1	COVER, LEFT	
12	RB1-6977-000		1	COVER, ELECTRICAL	
13	RB1-6978-000		1	TRAY, FACE-DOWN	
14	RB1-6980-000		1	COVER, SWITCH	
15	RB1-6493-000		1	SPRING, COMPRESSION	
16	RB1-6981-000		1	COVER, RIGHT, LOWER	
17	RF5-1749-000		1	COVER, REAR	
17A	RB1-6939-000		1	GUIDE, COVER	
17B	XA9-0437-000		5	NUT, PUSH	
18	RB1-6509-000		1	SPRING, TORSION	
19	RG5-3683-000		1	PANEL, FRONT	
20	RS5-8676-000		1	LABEL, JAM REMOVAL	
21	XA9-0605-000		6	SCREW, M4X8	
22	RB1-6940-000		1	TRAY, FACE-UP	
23	XA9-0872-000		11	SCREW, W/WASHER, M3X8	
24	RB1-7000-000		1	PLATE, GUARD	
25	XA9-0872-000		1	SCREW, W/WASHER, M3X8	
501	XB4-7400-809		3	SCREW,TAPPING,TRUSS HEAD,M4X8	

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FIGURE 101 INTERNAL COMPONENTS 1

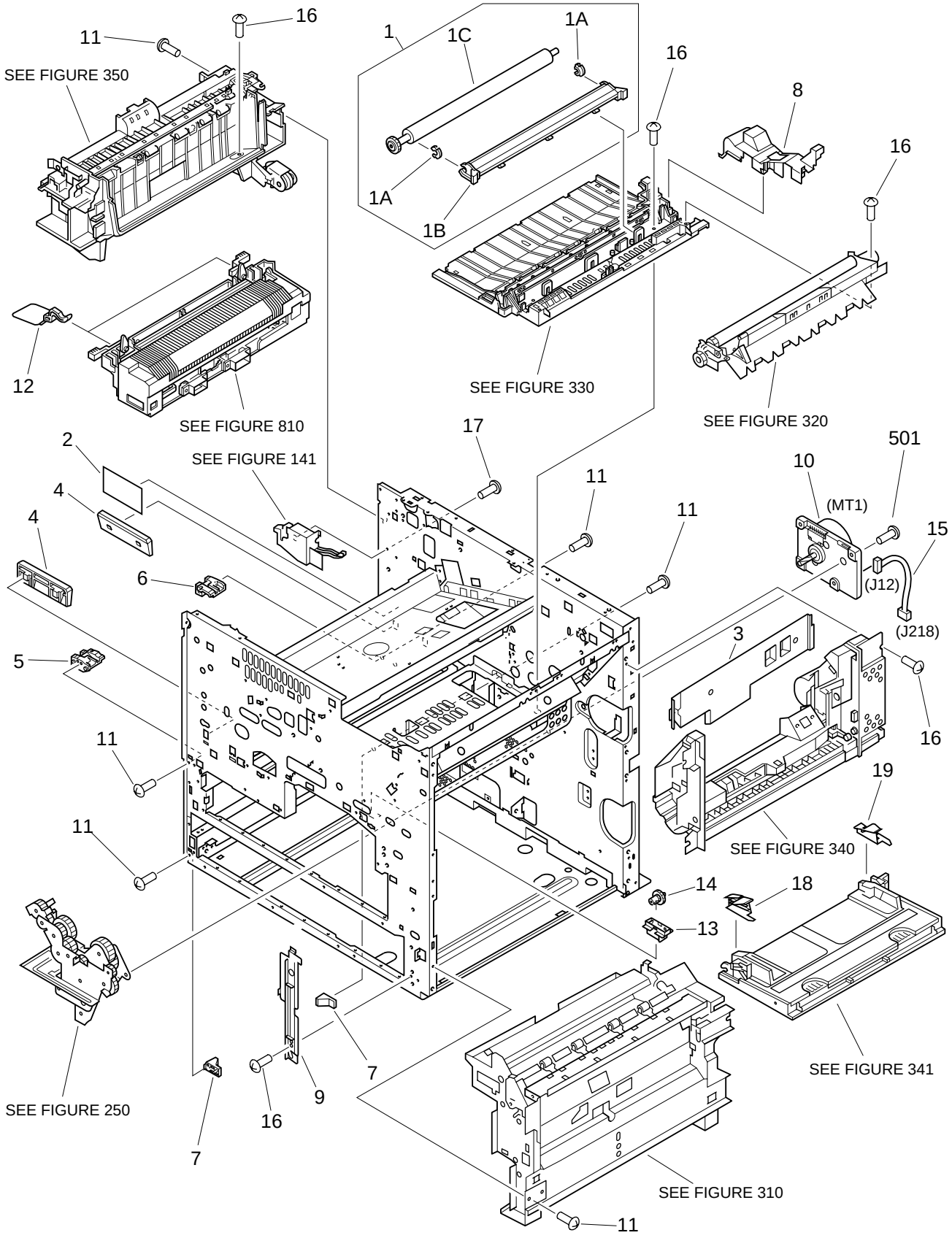

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
101 -	NPN		RF	INTERNAL COMPONENTS 1	
1	RG5-1887-000		1	TRANSFER ROLLER ASS'Y	
1A	RB1-6441-000		2	BUSHING	
1B	RF5-1394-000		1	HOLDER, TRANSFER	
1C	RF5-1412-000		1	ROLLER, TRANSFER	
2	RS5-8597-000		1	LABEL, JAM REMOVAL	
3	RB1-6749-000		1	COVER, MP TRAY PICK-UP	
4	RB1-6456-000		2	RAIL, FIXING	
5	RB1-6461-000		1	HOLDER, DAMPER, FRONT	
6	RB1-6462-000		1	HOLDER, DAMPER, REAR	
7	RB1-6466-000		2	GUIDE, OPTION	
8	RB1-6468-000		1	COVER, CLUTCH	
9	RB1-6982-000		1	COVER, FRONT	
10	RH7-1260-000		1	MOTOR, MAIN	MT1, J12
11	XA9-0267-000		10	SCREW, TP, M3X6	
12	RF5-1434-000		2	SPACER	
13	RB1-6403-000		1	STOPPER, PAWL	
14	RS5-0708-000		1	GEAR, 21T	
15	RG5-1919-000		1	MOTOR CABLE	J12, J218
16	XA9-0872-000		13	SCREW, W/WASHER, M3X8	
17	XA9-0605-000		1	SCREW, M4X8	
18	RB1-6708-000		1	PLATE, STOPPER, LEFT	
19	RB1-6709-000		1	PLATE, STOPPER, RIGHT	
501	XB6-7400-807		4	SCREW, TP, M4X8	

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FIGURE 102 INTERNAL COMPONENTS 2

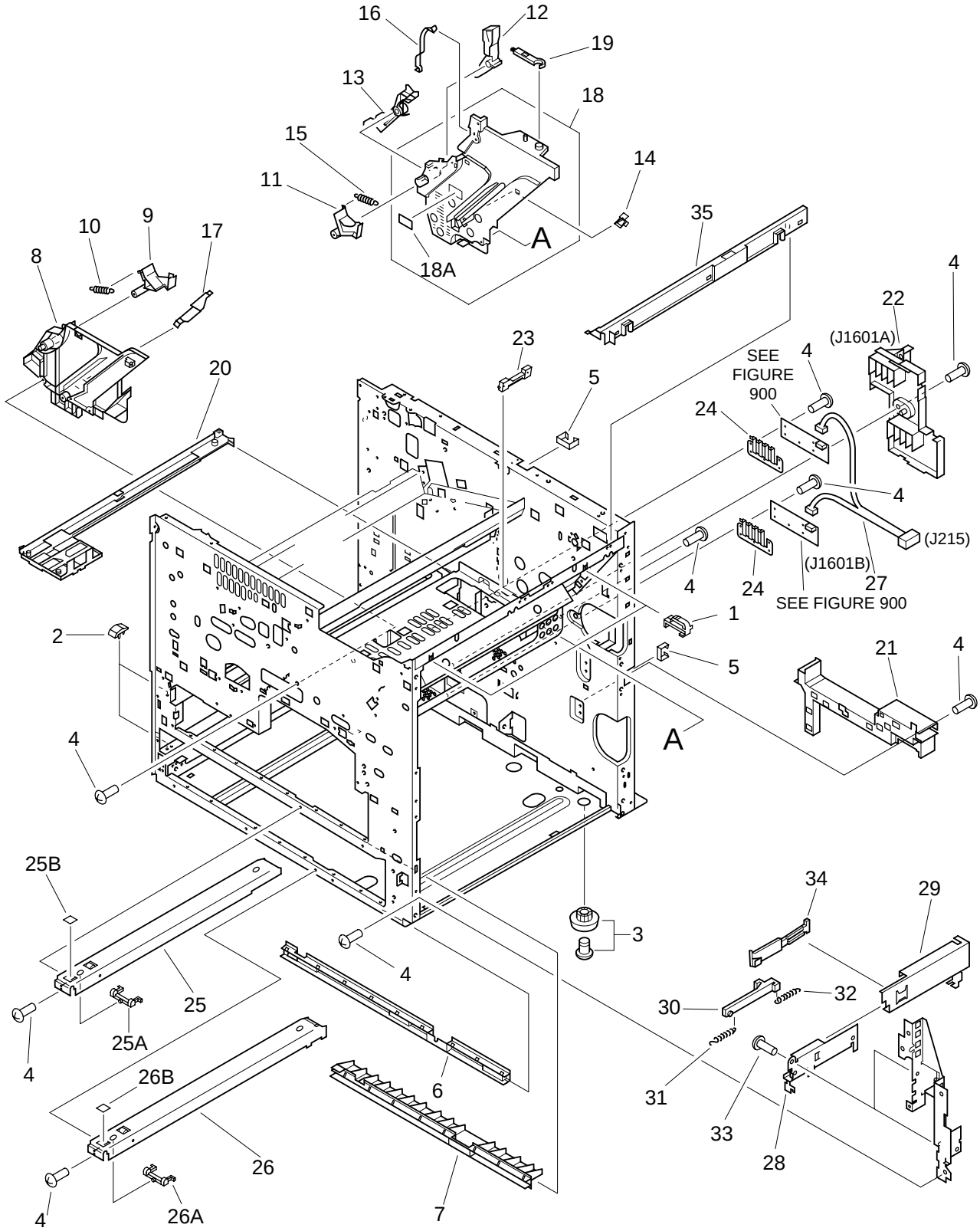

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
102 -	NPN		RF	INTERNAL COMPONENTS 2	
1	RB1-6419-000		2	BLOCK, RETAINER	
2	RB1-6430-000		2	CLIP, SLIDE	
3	RB1-6421-000		4	FOOT	
4	XA9-0267-000		15	SCREW, TP, M3X6	
5	WT2-0482-000		2	CLIP, WIRE	
6	RB1-6432-000		1	COVER, EDGE, UPPER	
7	RB1-6433-000		1	COVER, EDGE, LOWER	
8	RB1-6443-020		1	GUIDE, FRONT	
9	RB1-6444-000		1	ARM, PRESSURE, FRONT	
10	RS5-2468-000		1	SPRING, TENSION	
11	RB1-6446-000		1	ARM, PRESSURE, REAR	
12	RB1-6447-000		1	ARM, RELEASE, UPPER	
13	RB1-6448-000		1	ARM, RELEASE, LOWER	
14	RB1-6449-000		1	PLATE, DRUM	
15	RS5-2468-000		1	SPRING, TENSION	
16	RB1-6523-000		1	SPRING, LEAF	
17	RB1-6434-000		1	SPRING, LEAF	
18	RF5-1397-000		1	GUIDE, REAR	
18A	RS5-8428-000		1	LABEL, "CAUTION"	
19	RB1-2260-000		1	BRUSH, CLEANING	
20	RB1-6455-000		1	COVER, FIXING, LOWER	
21	RB1-6470-000		1	COVER, CABLE, LVT	
22	RB1-6474-000		1	COVER, SIZE	
23	RB1-6512-000		1	SPRING, LEAF	
24	RB1-6909-000		2	SPRING, LEAF	
25	RF5-1395-000		1	RAIL, CASSETTE, UPPER	
25A	RB1-6429-000		1	GUARD, EDGE	
25B	RS5-8593-000		1	LABEL	
26	RF5-1396-000		1	RAIL, CASSETTE, LOWER	
26A	RB1-6429-000		1	GUARD, EDGE	
26B	RS5-8593-000		1	LABEL	
27	RG5-1920-000		1	CASSETTE SIZE CABLE	J215, J1601A, J1601B
28	RB1-6776-000		2	GUIDE, RAIL	
29	RB1-6777-000		2	RAIL, TRAY	
30	RB1-6778-000		2	ROD	
31	RS5-2499-000		2	SPRING, TENSION	
32	RS5-2500-000		2	SPRING, TENSION	
33	XA9-0686-000		4	SCREW, M3X6	
34	RB1-6783-000		2	STOPPER, RAIL	
35	RB1-6971-030		1	COVER, RIGHT, UPPER	

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FIGURE 103 INTERNAL COMPONENTS 3

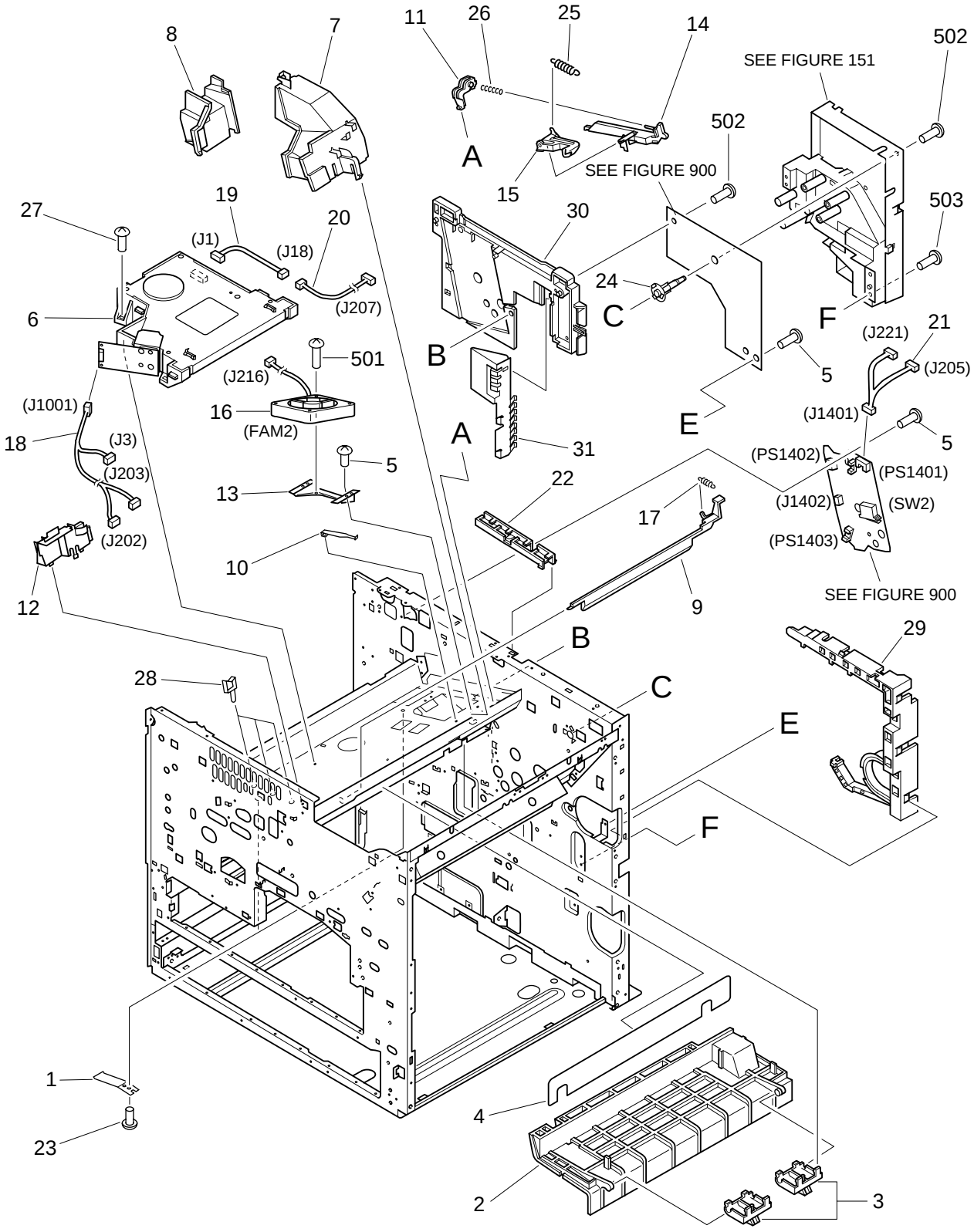

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
103 -	NPN		RF	INTERNAL COMPONENTS 3	
1	RB1-6425-000		2	SPRING, LEAF	
2	RB1-6426-000		1	PLATE, FIXING	
3	RB1-6427-000		2	STOPPER, CG	
4	RB1-6428-000		1	SHEET, INSULATION	
5	XA9-0267-000		6	SCREW, TP, M3X6	
6	RG5-1895-050		1	LASER/SCANNER ASS'Y	
7	RB1-6450-030		1	DUCT, SCANNER	
8	RB1-6457-000		1	COVER, COUPLER	
9	RB1-6458-000		1	SHUTTER	
10	RB1-6459-000		1	SPRING, LEAF	
11	RB1-6460-000		1	PLATE, HOLDER	
12	RB1-6465-000		1	PLATE, DUCT, FRONT	
13	RB1-6467-000		1	MOUNT, FAN	
14	RB1-6472-000		1	ARM, LOCK, INTER	
15	RB1-6473-000		1	SHUTTER	
16	RH7-1266-000		1	FAN FAM2, J216	
17	RS5-2467-000		1	SPRING, TENSION	
18	RG5-2542-000		1	LESER AND PANEL CABLE	J3, J202, J203, J1001
19	RG5-1925-000		1	SCANNER MOTOR CABLE	J1, J18
20	RG5-1926-000		1	BD CABLE	J18, J207
21	RG5-1927-000		1	ILS CABLE	J205, J221, J1401
22	RB1-6780-000		1	COVER, CABLE	
23	XA9-0686-000		2	SCREW, M3X6	
24	RB1-6503-000		1	SUPPORT, PCB	
25	RS5-2469-000		1	SPRING, TENSION	
26	RS5-2470-000		1	SPRING, COMPRESSION	
27	XA9-0817-000		4	SCREW,W/WASHER,M3X20	
28	WT2-0262-000		3	CLIP, CABLE	
29	RB1-6469-020		1	COVER, CABLE, DC	
30	RB1-6471-020		1	MOUNT, CONTROL	
31	RB1-6781-000		1	PLATE, SHIELD	
501	XB5-6303-007		2	SCREW,CT,M3X30	
502	XB4-7300-809		3	SCREW,TAPPING,TRUSS HEAD,M3X8	
503	XB4-7401-009		3	SCREW,TAPPING,PAN HEAD,M4X10	

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FIGURE 104 INTERNAL COMPONENTS 4

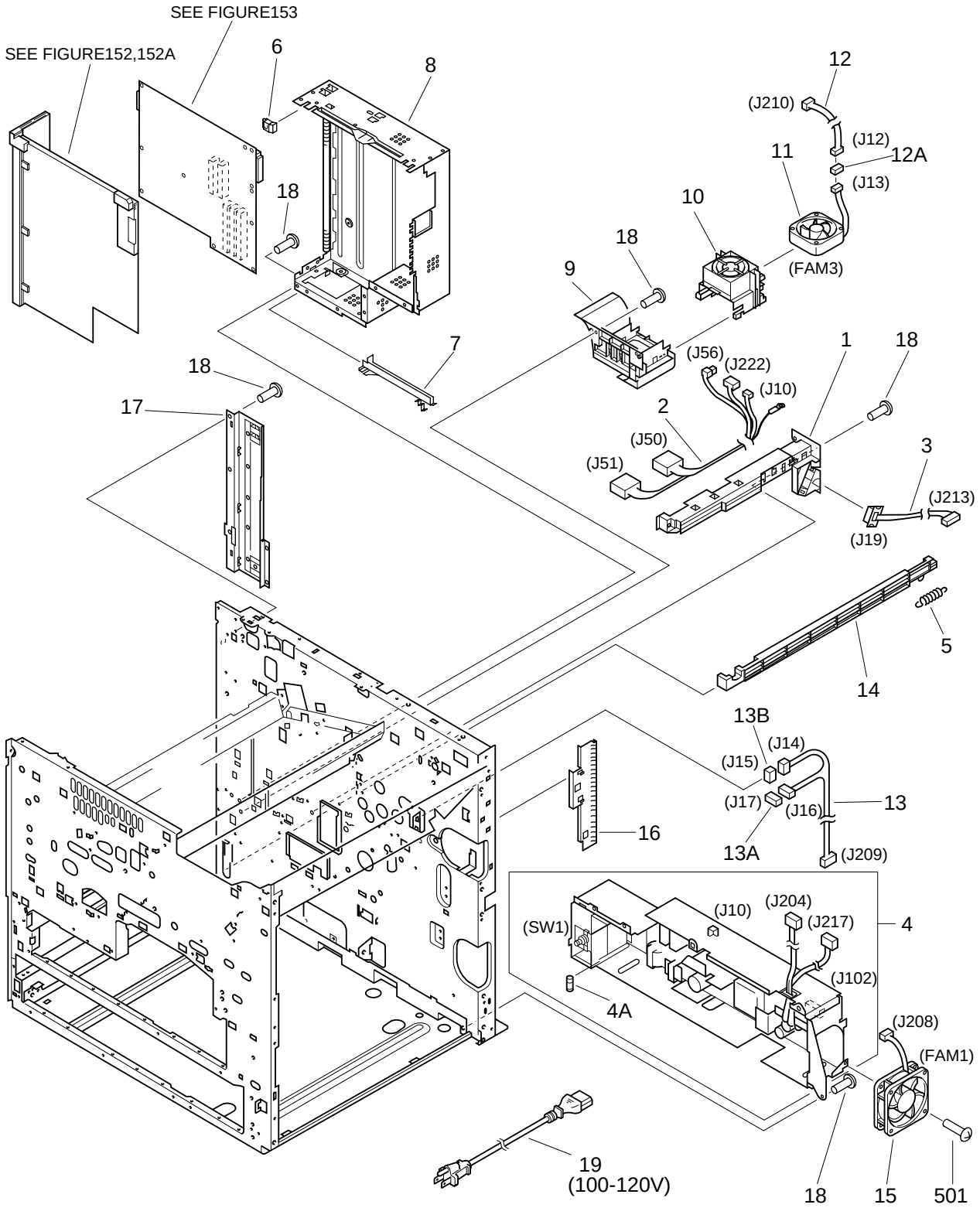

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
104 -	NPN		RF	INTERNAL COMPONENTS 4	
1	RB1-6502-000		1	COVER, CABLE	
2	RG5-1849-000		1	FIXING, 1 CABLE	J10, J50, J51, J56, J222
3	RG5-1850-000		1	FIXING, 2 CABLE	J19, J213
4	RG5-1878-000		1	POWER SUPPLY ASS'Y	100-120V SW1 J10,J102,J204,J217
	RG5-1877-000		1	POWER SUPPLY ASS'Y	220-240V SW1 J10,J102,J204,J217
4A	VD7-0644-301		1	FUSE, AC125V, 6.3A	100-120V
	VD5-0066-301		1	FUSE, AC125V, 6.3A	220-240V
5	RS5-2465-000		1	SPRING, TENSION	
6	RB1-6930-000		1	GUIDE, TRAY	
7	RB1-6775-000		1	GUIDE, SLIDE	
8	RF5-1466-030		1	COVER, SHIELD	
9	RB1-6760-000		1	DUCT A	
10	RB1-6761-000		1	DUCT B	
11	RH7-1271-000		1	FAN	FAM3, J13
12	RG5-1921-000		1	CABLE, FAN	J12, J210
12A	VS1-0842-003		1	CONNECTOR, 3P	J13
13	RG5-1928-000		1	REGIST, CABLE	J14, J16, J209
13A	VS1-5057-002		1	CONNECTOR, 2P	J16, J17
13B	VS1-5057-003		1	CONNECTOR, 3P	J14, J15
14	RB1-6970-000		1	ROD, SWITCH	
15	RH7-1266-000		1	FAN	FAM1, J208
16	RB1-6772-000		1	PLATE, SHIELD	
17	RF5-1464-020		1	PLATE, SHIELD	
18	XA9-0872-000		16	SCREW, W/WASHER, M3X8	
19	RH2-5263-000		1	CORD, POWER	100-120V
501	XB6-7303-007		4	SCREW, TP, M3X30	

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FIGURE 141 FACE-UP SOLENOID ASS'Y

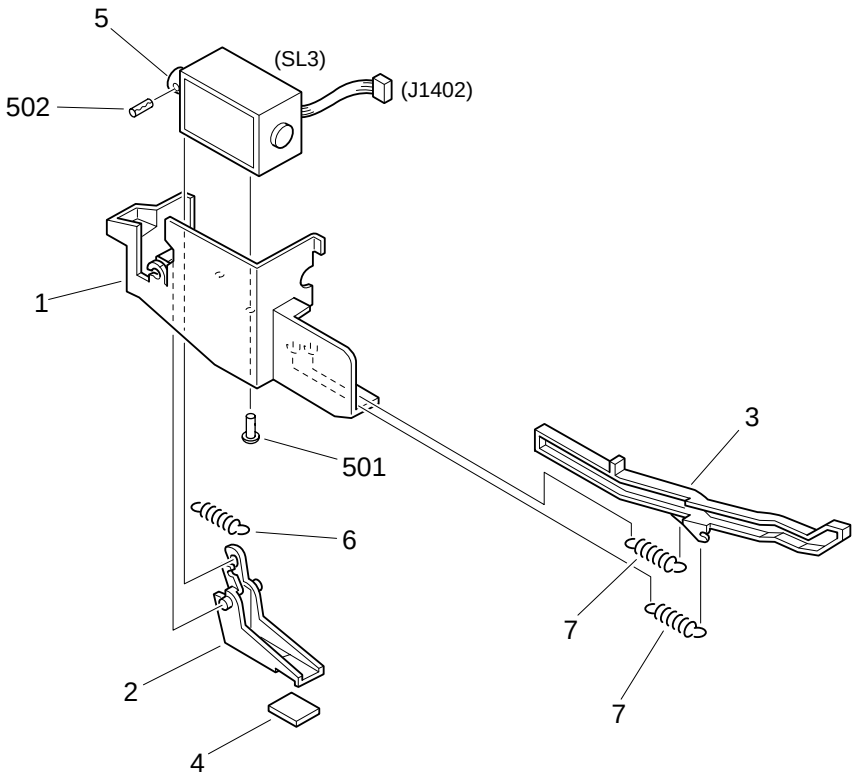

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
141 -	RG5-1875-000		1	FACE-UP SOLENOID ASS'Y	
1	RB1-6698-000		1	HOLDER, SOLENOID	
2	RB1-6699-000		1	LEVER, SOLENOID	
3	RB1-6700-000		1	ARM, LOCK, INTER	
4	RB1-6702-000		1	CUSHION, LEVER, 9.5X11	
5	RH7-5123-000		1	SOLENOID	SL3, J1402
6	RS5-2492-000		1	SPRING, TENSION	
7	RS5-2493-000		2	SPRING, TENSION	
501	XB6-7300-409		2	SCREW, TP, M3X4	
502	XD3-1300-082		1	PIN, SPRING	

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FIGURE 151 HIGH VOLTAGE POWER SUPPLY ASS'Y

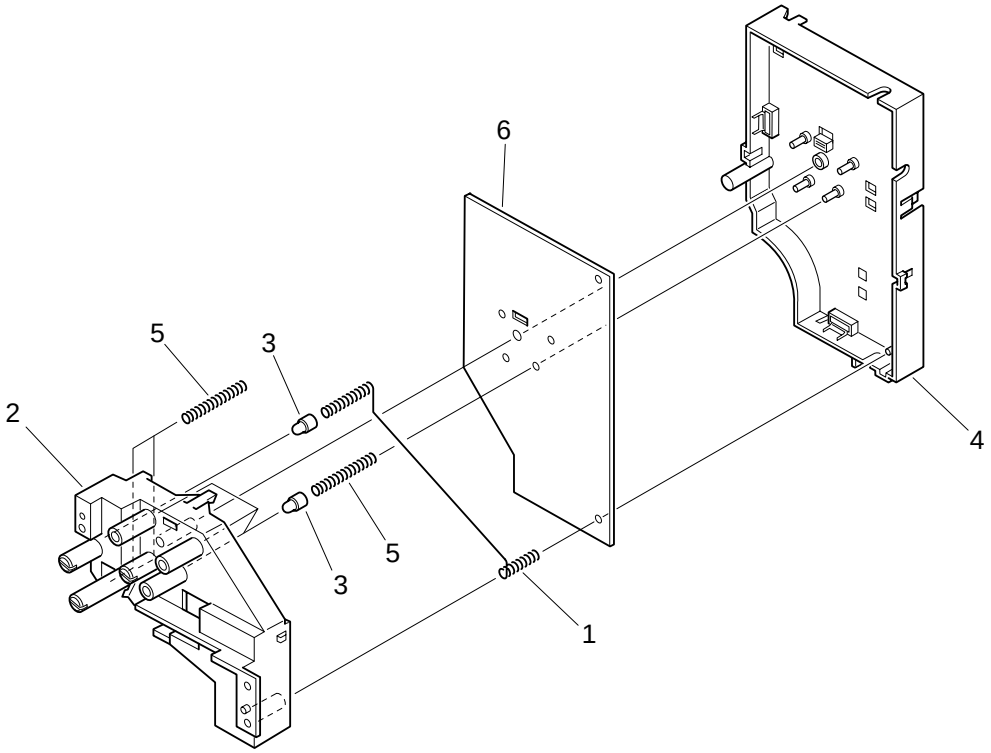

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
151 -	RG5-1888-090		1	HIGH VOLTAGE POWER SUPPLY ASS'Y	
1	RB1-6753-000		1	SPRING, COMPRESSION	
2	RB1-6756-020		1	COVER, HVT	
3	RB1-6757-000		3	PIN, CONTACT	
4	RB1-6758-000		1	CASE, HIGH VOLTAGE	
5	RB1-6759-000		5	SPRING, COMPRESSION	
6	RG5-1891-020		1	HIGH VOLTAGE PCB ASS'Y	

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FIGURE 152 VIDEO CONTROLLER ASS'Y (100-120V)

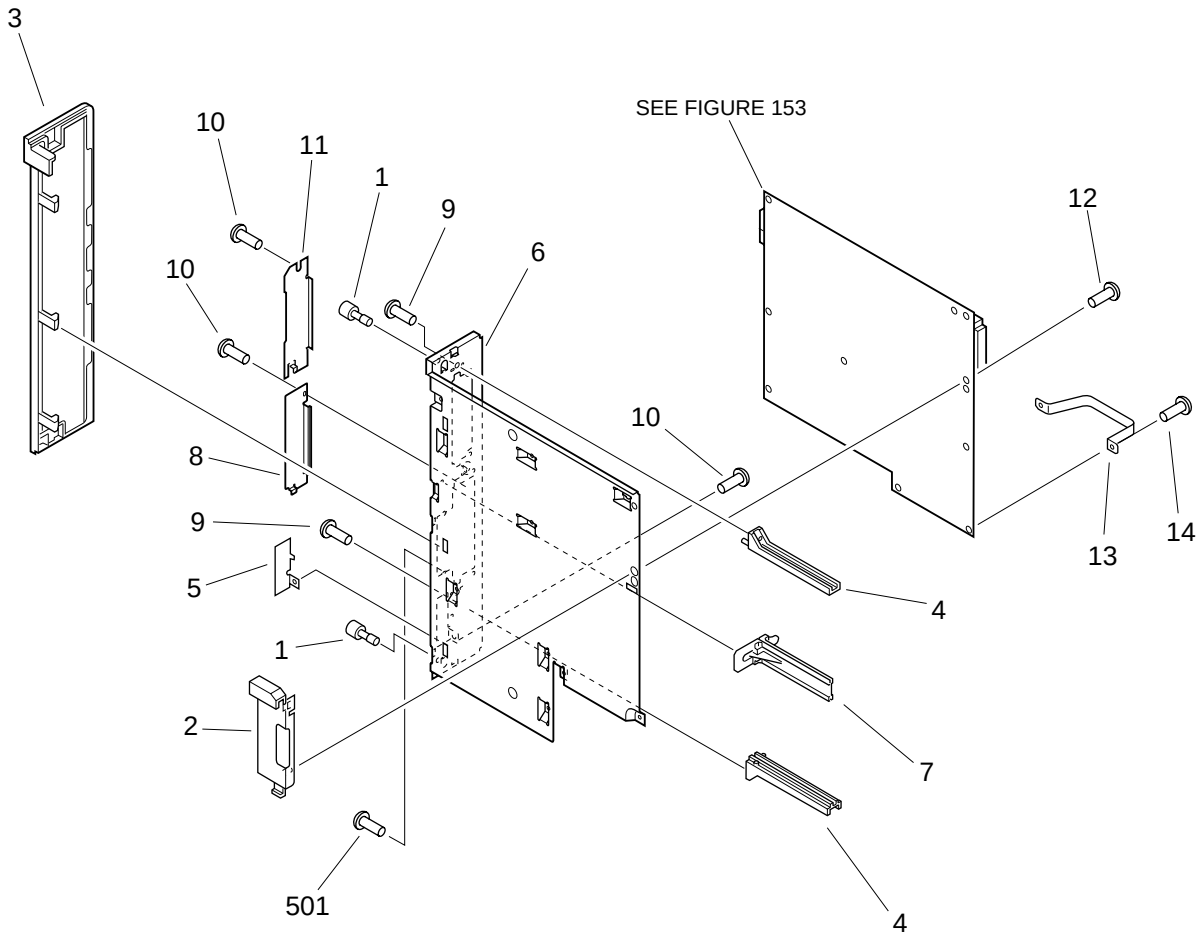

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
152 -	RG5-3679-000		1	VIDEO CONTROLLER ASS'Y	100-120V
1	RB1-4886-000		2	SCREW, M4X5	
2	RB1-6927-000		1	GUIDE, SLIDE	
3	RB1-6928-000		1	COVER, SLIDE	
4	RB1-7067-000		2	RAIL, GUIDE	
5	RB1-7069-000		1	PLATE, COVER	
6	RB1-7072-000		1	PLATE, GUIDE	
7	RB1-7073-000		1	RAIL, GUIDE	
8	RB1-7076-000		1	PLATE, COVER	
9	XA9-0615-000		2	SCREW, M4X8	
10	XA9-0836-000		9	SCREW,TP,M3X6	
11	RB1-7075-000		1	PLATE, COVER	
12	XA9-0386-000		6	SCREW, M4X8	
13	RB1-7070-000		1	PLATE, GUARD	
14	XA9-0615-000		2	SCREW, M4X8	
501	XB1-1301-003		2	SCREW,MACH.,PAN HEAD,M3X10	

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FIGURE 152A VIDEO CONTROLLER ASS'Y (220-240V)

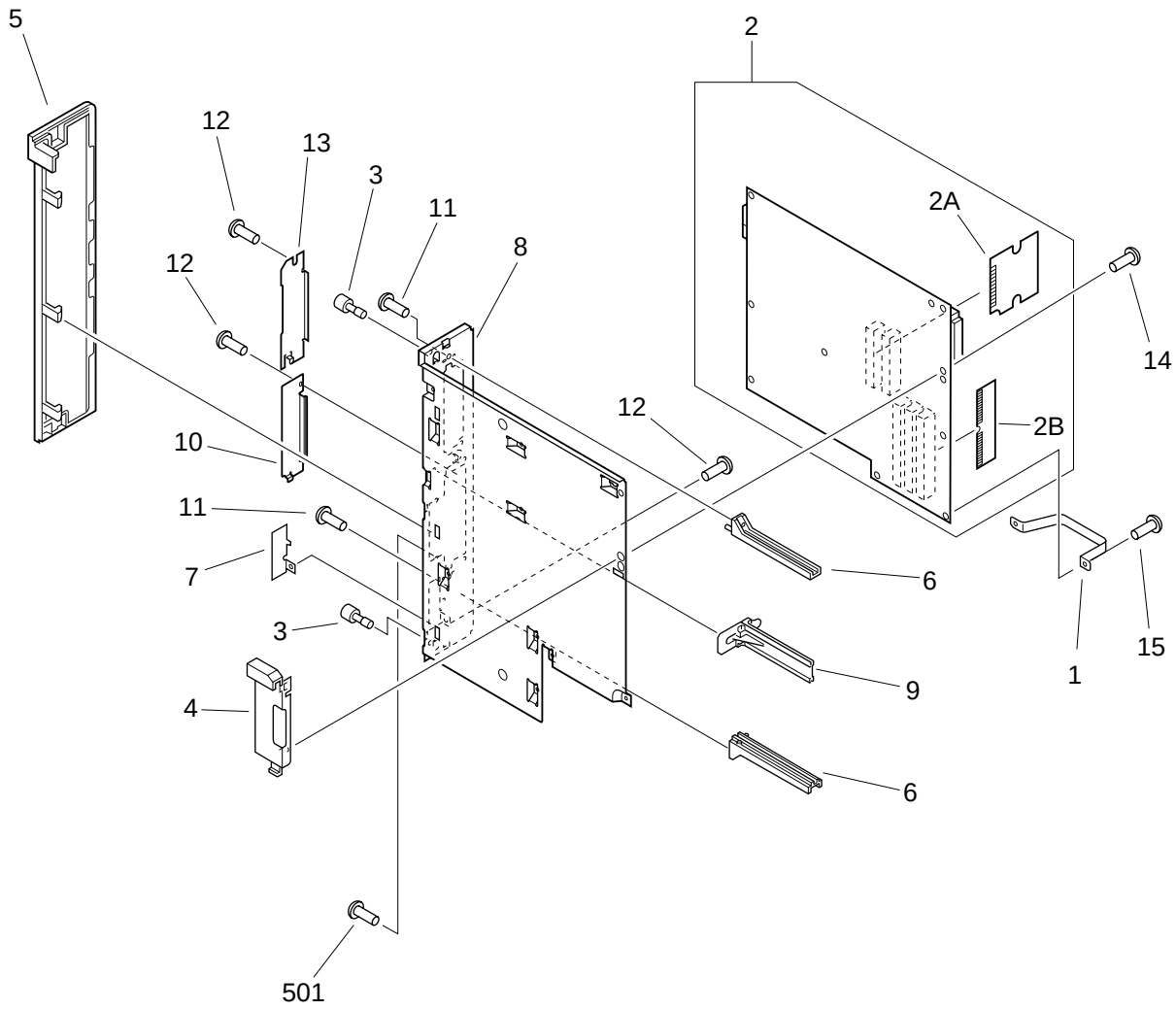

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
152A -	RG5-3677-000		1	VIDEO CONTROLLER ASS'Y	220-240V
1	RB1-7070-000		1	PLATE, GUARD	
2	RG1-3762-00V		1	VIDEO CONTROLLER PCB ASS'Y	SEE FIGURE 900
					USA ORIG. PARTS(LPS)
2A	RG1-3739-00V		1	FLASH ROM DIMM PCB ASS'Y	USA ORIG. PARTS(LPS)
2B	WA7-0063-00V		1	IC, TM124BBK32K-70, DRAM	USA ORIG. PARTS(LPS)
3	RB1-4886-000		2	SCREW, M4X5	
4	RB1-6927-000		1	GUIDE, SLIDE	
5	RB1-6928-000		1	COVER, SLIDE	
6	RB1-7067-000		2	RAIL, GUIDE	
7	RB1-7069-000		1	PLATE, COVER	
8	RB1-7072-000		1	PLATE, GUIDE	
9	RB1-7073-000		1	RAIL, GUIDE	
10	RB1-7076-000		1	PLATE, COVER	
11	XA9-0615-000		2	SCREW, M4X8	
12	XA9-0836-000		3	SCREW, TP, M3X6	
13	RB1-7075-000		1	PLATE, COVER	
14	XA9-0615-000		2	SCREW, M4X8	
15	XA9-0386-000		6	SCREW, M4X8	
501	XB1-1301-007		2	SCREW,MACH.,PAN HEAD,M3X10	

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FIGURE 153 VIDEO CONTROLLER PCB ASS'Y (100-120V)

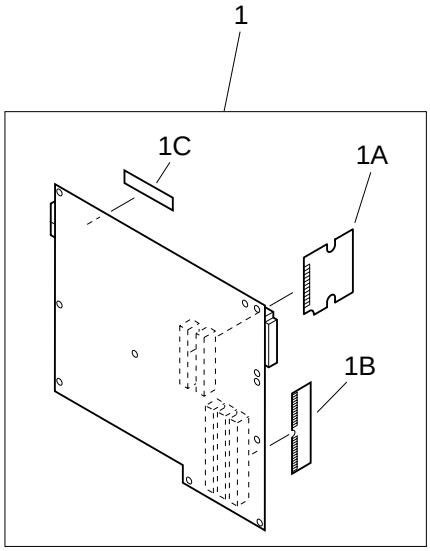

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
153 - 1	RG1-3736-00V		1	VIDEO CONTROLLER PCB ASS'Y	100-120V USA ORIG. PARTS (LPS)
1A	RG1-3739-000		1	FLASH ROM DIMM PCB ASS'Y	
1B	WA7-0063-000		1	IC, TM124BBK32K-70, DRAM	
1C	RA2-2372-00V		1	LABEL	USA ORIG. PARTS (LPS)

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FIGURE 250 PRINTER DRIVE ASS'Y

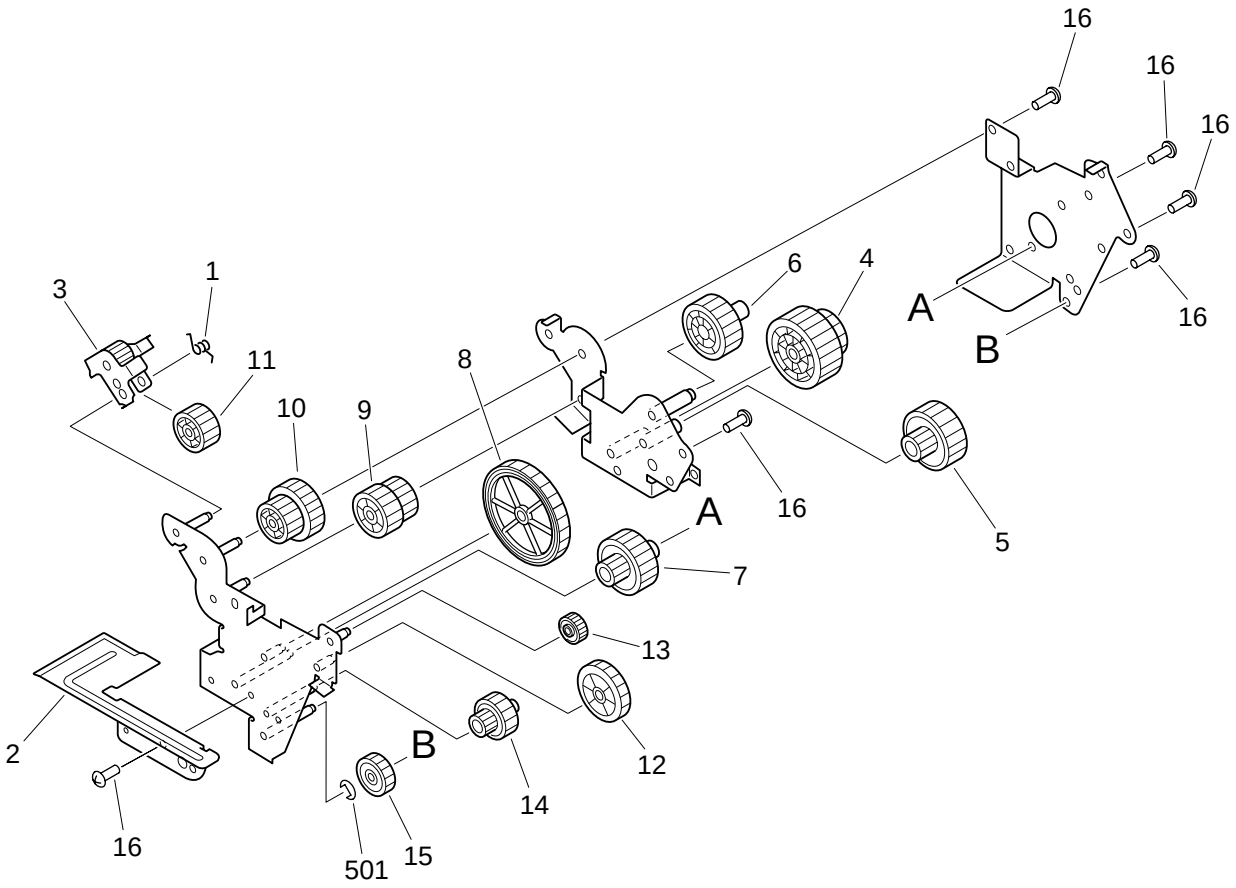

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
250 -	RG5-1847-030		1	PRINTER DRIVE ASS'Y	
1	RB1-6517-000		1	SPRING, TORSION	
2	RB1-6518-030		1	PLATE, GUIDE	
3	RF5-1410-000		1	COUPLER, FIXING	
4	RS5-0717-000		1	GEAR, 42T/99T	
5	RS5-0718-000		1	GEAR, 17T/57T	
6	RS5-0729-000		1	GEAR, 41T	
7	RS5-0720-000		1	GEAR, 17T/75T	
8	RS5-0721-000		1	GEAR, 73T	
9	RS5-0722-000		1	GEAR, 27T/30T	
10	RS5-0723-000		1	GEAR, 26T/39T	
11	RS5-0724-000		1	GEAR, 25T	
12	RS5-0725-000		1	GEAR, 39T	
13	RS5-0726-000		1	GEAR, 17T	
14	RS5-0727-000		1	GEAR, 19T/57T	
15	RS5-0728-000		1	GEAR, 31T	
16	XA9-0267-000		6	SCREW, TP, M3X6	
501	XD2-1100-502		1	RING, E	

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FIGURE 300 CASSETTE (LOWER)

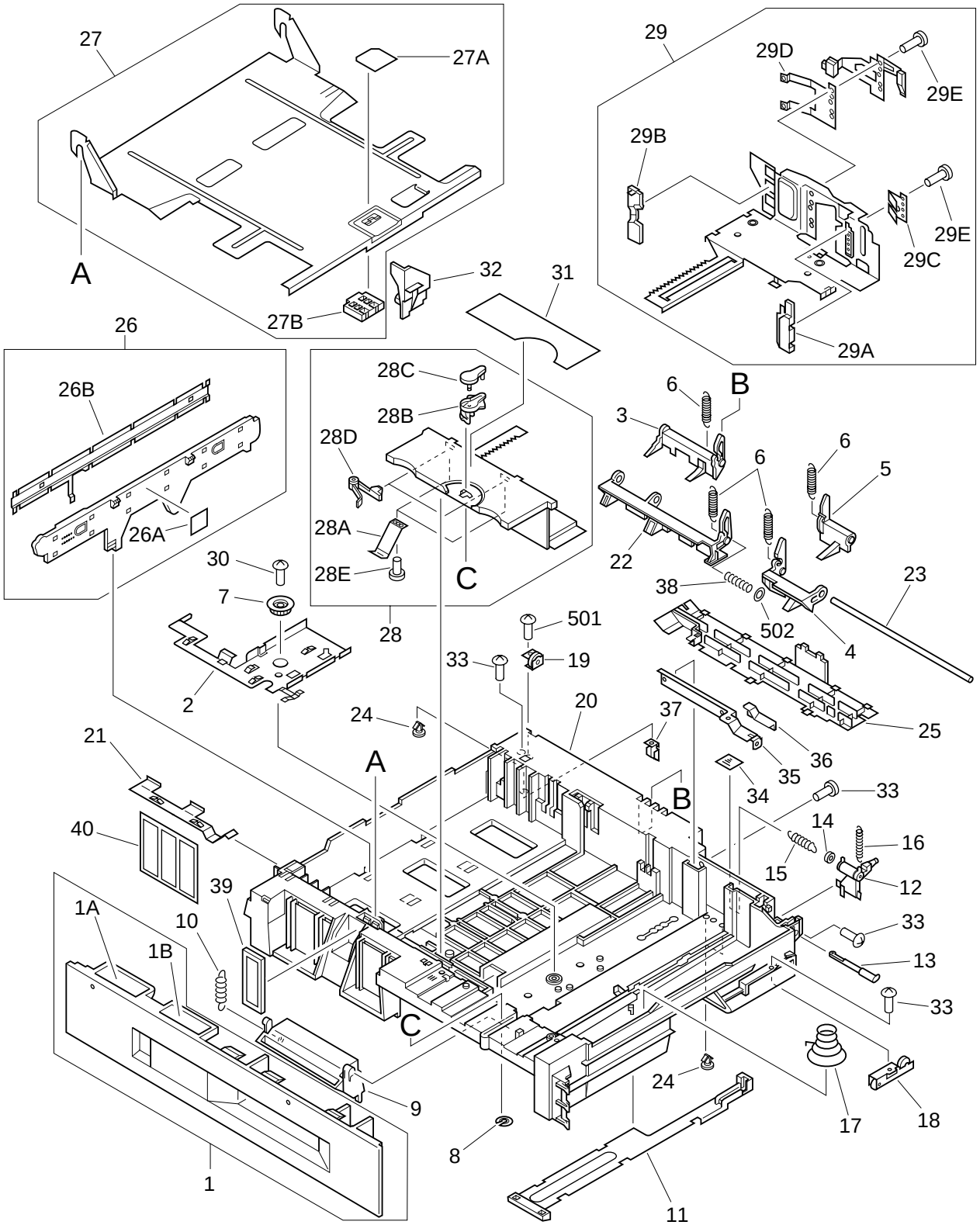

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
300 -	NPN		RF	CASSETTE (LOWER)	
1	RF5-1754-000		1	PANEL, FRONT	
1A	RS5-8662-000		1	LABEL, OPERATION	
1B	RS5-8665-000		1	LABEL, CASSETTE SIZE DISPLAY	LTR/A4 LGL/B4 11X17/A3
2	RB1-6875-020		1	PLATE, GROUNDING	
3	RB1-6877-000		1	CAM, SIZE, B	
4	RB1-6878-000		1	CAM, SIZE, C	
5	RB1-6879-000		1	CAM, SIZE, D	
6	RB1-6881-020		4	SPRING, TENSION	
7	RB1-6882-000		1	GEAR, 20T	
8	RB1-6883-000		1	PLATE, LOCK	
9	RB1-6884-000		1	LATCH	
10	RB1-6885-000		1	SPRING, TENSION	
11	RB1-6887-000		1	PLATE, CHANGING	
12	RB1-6888-000		1	ARM, SENSOR	
13	RB1-6889-000		1	SHAFT, LATCH	
14	RB1-6890-000		1	BUSHING	
15	RB1-6891-000		1	SPRING, TENSION	
16	RB1-6892-000		1	SPRING, TENSION	
17	RB1-6893-000		1	SPRING, COMPRESSION	
18	RF5-1486-000		1	ROLLER, 1	
19	RF5-1487-000		1	ROLLER, 2	
20	RB1-6900-060	N	1	BODY, CASSETTE	
21	RB1-6901-000		1	PLATE, GROUNDING	
22	RB1-6902-000		1	CAM, SIZE, A	
23	RB1-6903-000		1	SHAFT, CAM	
24	RB1-6904-000		3	CLIP	
25	RB1-6908-000		1	COVER, SIZE CAM	
26	RF5-1484-000		1	PLATE, END	
26A	RS5-8605-000		1	LABEL, "LIMIT"	
26B	RB1-6869-000		1	PLATE, REINFORCEMENT	
27	RF5-1485-030		1	PLATE, PAPER LIFTING	
27A	RB1-6872-000		1	SHEET, SEPARATION, LEATHER	
27B	RB1-6871-000		1	CUSHION	
28	RG5-1909-000		1	PANEL, LIMIT	
28A	RB1-6858-000		2	SPRING, LEAF	
28B	RB1-6859-000		1	LEVER, LOCK	
28C	RB1-6905-000		1	COVER, LEVER	
28D	RB1-6914-000		2	CLAW	
28E	XB1-2300-406		2	SCREW,MACH.,TRUSS HEAD,M3X4	
29	RG5-1910-000		1	PANEL, LIMIT	
29A	RB1-6861-000		1	PLATE, SIDE, FRONT	
29B	RB1-6863-000		1	PLATE, SIDE, REAR	
29C	RB1-6865-000		1	SPRING, LEAF	
29D	RB1-6867-000		1	SPRING, LEAF	
29E	XB1-2300-406		5	SCREW,MACH.,TRUSS HEAD,M3X4	
30	XA9-0283-000		1	SCREW, TP	
31	RS5-8607-000		1	LABEL, OPERATION	
32	RB1-6784-000		1	PLATE, HOLDER	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
300 - 33	XA9-0236-000		4	SCREW, W/WASHER, M3X10	
34	RS5-8593-000		1	LABEL	
35	RB1-6912-000		1	PLATE, REINFORCEMENT	
36	RB1-6913-000		1	COVER, PROTECTIVE	
37	RB1-6915-000		1	STOPPER, TRAY	
38	RB1-6916-000		1	SPRING, COMPRESSION	
39	RB1-6992-000		1	PLATE, CASSETTE SIZE DISPLAY	
40	RS5-8667-000		1	LABEL, CASSETTE SIZE DISPLAY	A4/B4 LTR/LGL 11X17/A3
501	XB4-7300-805		1	SCREW, TP	
502	XD1-1105-233		1	WASHER, SHIM	

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FIGURE 301 CASSETTE (UPPER)

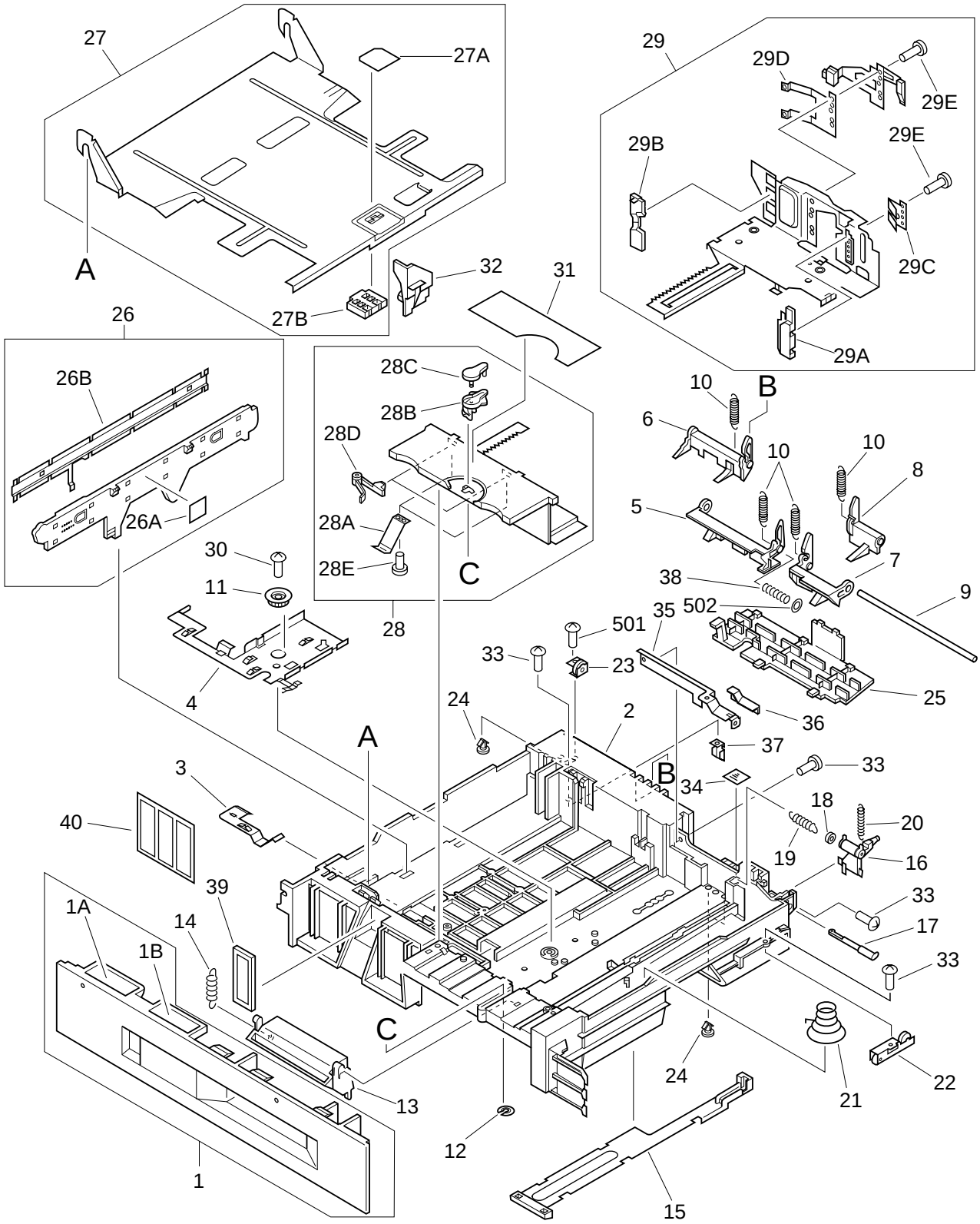

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
301 -	NPN		RF	CASSETTE (UPPER)	
1	RF5-1753-000		1	PANEL, FRONT	
1A	RS5-8662-000		1	LABEL, OPERATION	
1B	RS5-8664-000		1	LABEL, CASSETTE SIZE DISPLAY	LTR/A4 LGL/B4
2	RB1-6873-070	N	1	BODY, CASSETTE	
3	RB1-6874-000		1	PLATE, GROUNDING	
4	RB1-6875-020		1	PLATE, GROUNDING	
5	RB1-6876-000		1	CAM, SIZE, A	
6	RB1-6877-000		1	CAM, SIZE, B	
7	RB1-6878-000		1	CAM, SIZE, C	
8	RB1-6879-000		1	CAM, SIZE, D	
9	RB1-6880-000		1	SHAFT, CAM	
10	RB1-6881-020		4	SPRING, TENSION	
11	RB1-6882-000		1	GEAR, 20T	
12	RB1-6883-000		1	PLATE, LOCK	
13	RB1-6884-000		1	LATCH	
14	RB1-6885-000		1	SPRING, TENSION	
15	RB1-6887-000		1	PLATE, CHANGING	
16	RB1-6888-000		1	ARM, SENSOR	
17	RB1-6889-000		1	SHAFT, LATCH	
18	RB1-6890-000		1	BUSHING	
19	RB1-6891-000		1	SPRING, TENSION	
20	RB1-6892-000		1	SPRING, TENSION	
21	RB1-6893-000		1	SPRING, COMPRESSION	
22	RF5-1486-000		1	ROLLER, 1	
23	RF5-1487-000		1	ROLLER, 2	
24	RB1-6904-000		3	CLIP	
25	RB1-6907-000		1	COVER, SIZE CAM	
26	RF5-1484-000		1	PLATE, END	
26A	RS5-8605-000		1	LABEL, "LIMIT"	
26B	RB1-6869-000		1	PLATE, REINFORCEMENT	
27	RF5-1485-030		1	PLATE, PAPER LIFTING	
27A	RB1-6872-000		1	SHEET, SEPARATION, LEATHER	
27B	RB1-6871-000		1	CUSHION	
28	RG5-1909-000		1	PANEL, LIMIT	
28A	RB1-6858-000		2	SPRING, LEAF	
28B	RB1-6859-000		1	LEVER, LOCK	
28C	RB1-6905-000		1	COVER, LEVER	
28D	RB1-6914-000		2	CLAW	
28E	XB1-2300-406		2	SCREW,MACH.,TRUSS HEAD,M3X4	
29	RG5-1910-000		1	PANEL, LIMIT	
29A	RB1-6861-000		1	PLATE, SIDE, FRONT	
29B	RB1-6863-000		1	PLATE, SIDE, REAR	
29C	RB1-6865-000		1	SPRING, LEAF	
29D	RB1-6867-000		1	SPRING, LEAF	
29E	XB1-2300-406		5	SCREW,MACH.,TRUSS HEAD,M3X4	
30	XA9-0283-000		1	SCREW, TP	
31	RS5-8607-000		1	LABEL, OPERATION	
32	RB1-6784-000		1	PLATE, HOLDER	
33	XA9-0236-000		4	SCREW, W/WASHER, M3X10	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
301 - 34	RS5-8593-000		1	LABEL	
35	RB1-6911-000		1	PLATE, REINFORCEMENT	
36	RB1-6913-000		1	COVER, PROTECTIVE	
37	RB1-6915-000		1	STOPPER, TRAY	
38	RB1-6916-000		1	SPRING, COMPRESSION	
39	RB1-6992-000		1	PLATE, CASSETTE SIZE DISPLAY	
40	RS5-8666-000		1	LABEL, CASSETTE SIZE DISPLAY	A4/B4 LTR/LGL
501	XB4-7300-805		1	SCREW, TP	
502	XD1-1105-233		1	WASHER, SHIM	

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FIGURE 310 PAPER PICK-UP ASS'Y(1/3)

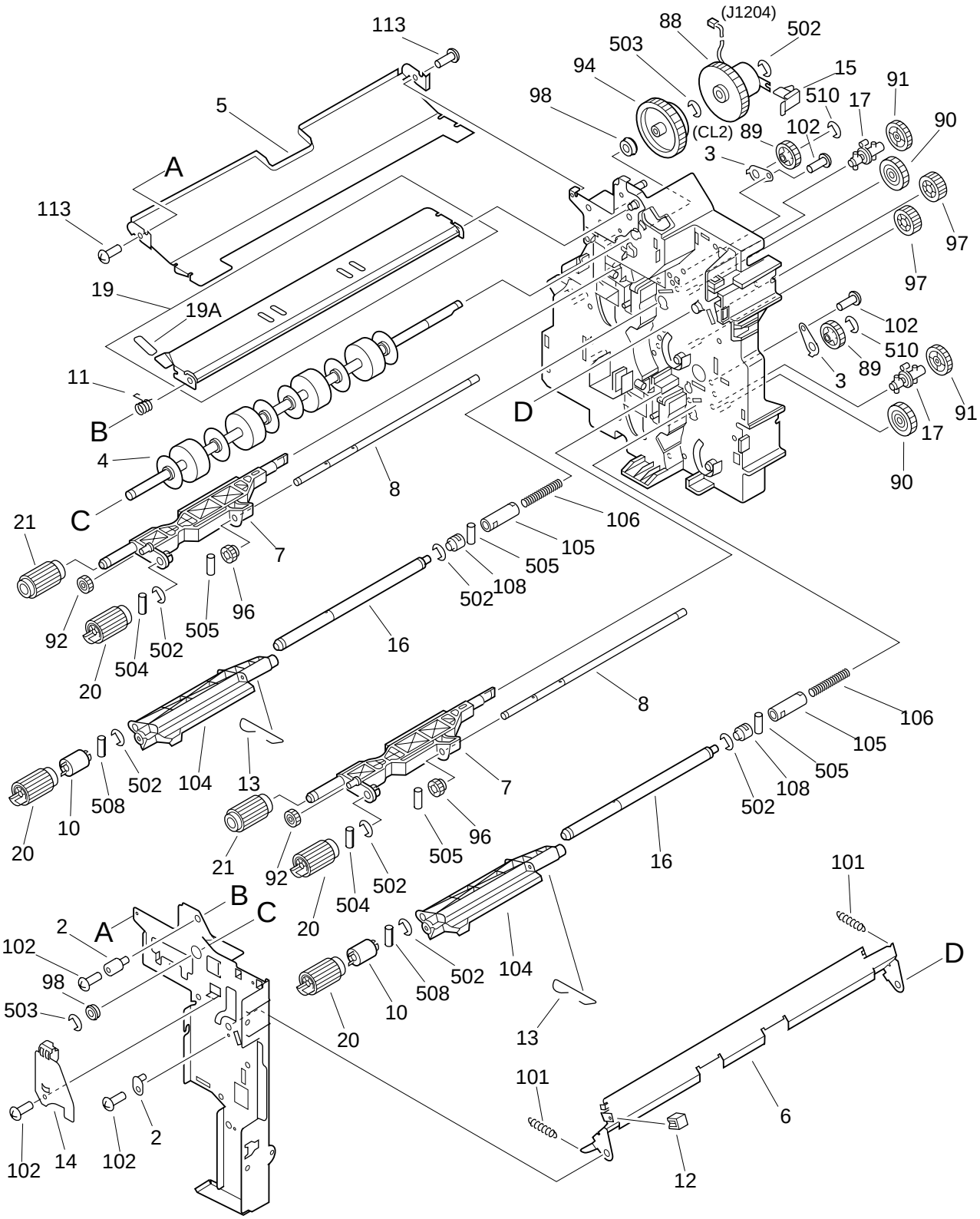

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FIGURE 310 PAPER PICK-UP ASS'Y (2/3)

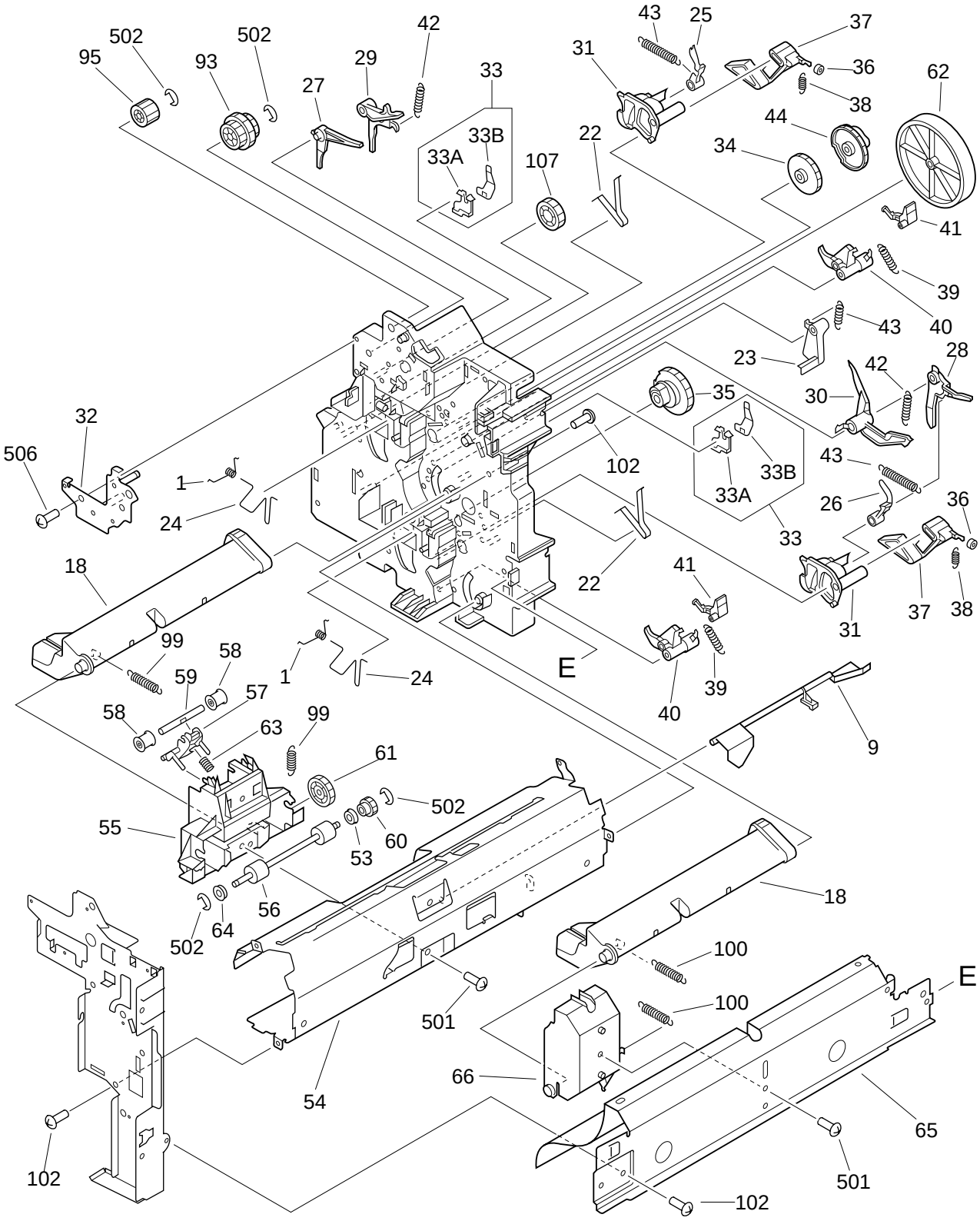

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FIGURE 310 PAPER PICK-UP ASS'Y (3/3)

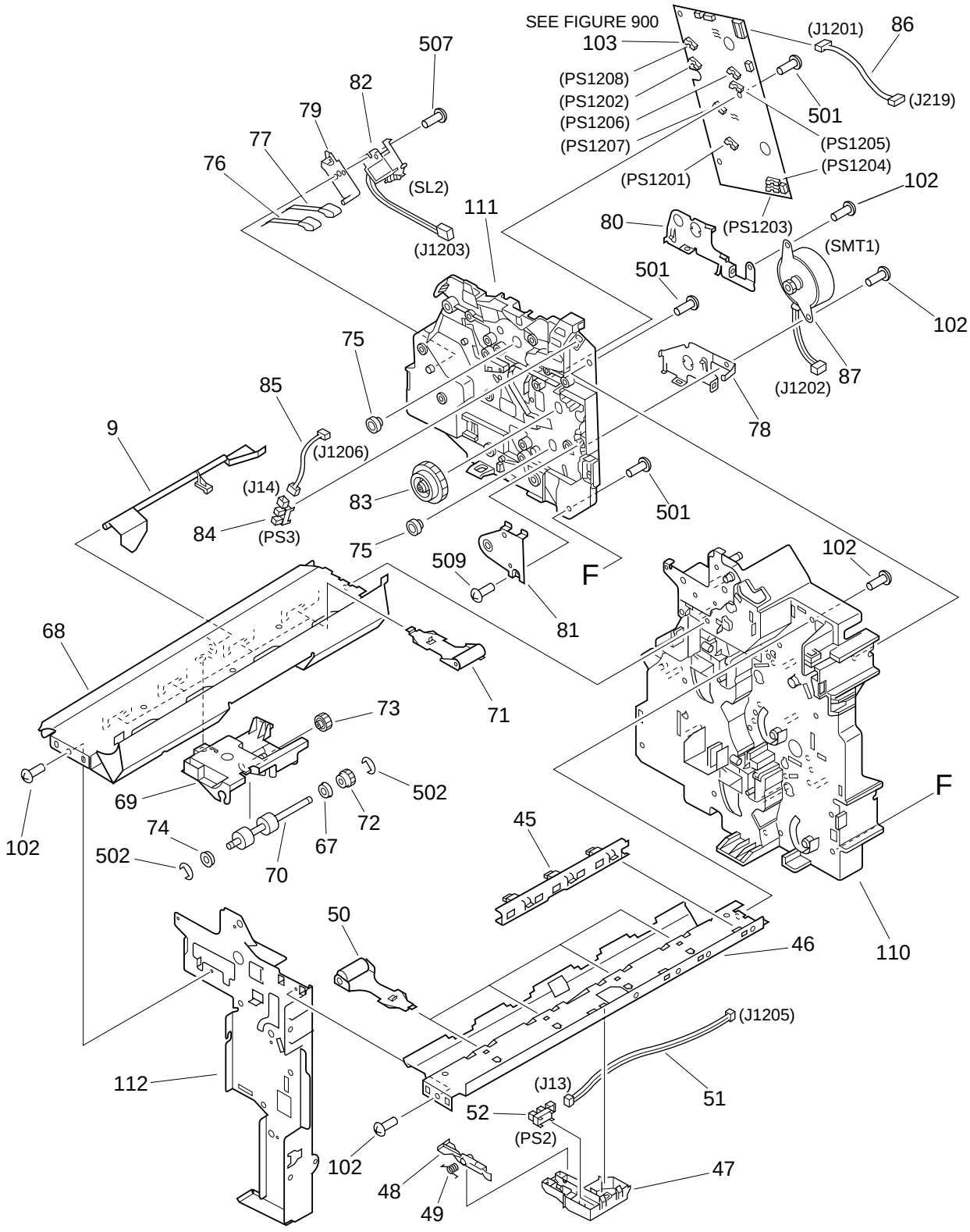

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
310 -	RG5-1852-230		1	PAPER PICK-UP ASS'Y	
1	RS5-2477-000		2	SPRING, TORSION	
2	RB1-0153-000		3	PIN	
3	RB1-6580-000		2	PLATE, GROUNDING	
4	RB1-6581-000		1	ROLLER, SECOND-PASS	
5	RB1-6582-020		1	PLATE, GUIDE, UPPER	
6	RB1-6583-000		1	GUIDE, OPEN/CLOSE	
7	RB1-6585-000		2	HOLDER, ROLLER	
8	RB1-6586-000		2	SHAFT, FRONT	
9	RB1-6587-040		2	FLAG, PAPER SENSING	
10	RB1-6588-000		2	LIMITER, TORQUE	
11	RB1-6589-000		1	SPRING, TORSION	
12	RB1-6590-000		1	LEVER, GUIDE	
13	RB1-6591-000		2	ROD, RELEASE	
14	RB1-6600-000		1	PLATE, GROUNDING	
15	RB1-6601-000		1	LEVER, OPEN/CLOSE	
16	RB1-6569-030		2	SHAFT	
17	RF5-1423-000		2	SHAFT, CONNECTING	
18	RF5-1424-000		2	LIFTER	
19	RF5-1425-000		1	GUIDE	
19A	RB1-6593-000		1	LABEL, HANDLE	
20	RF5-1834-000		4	ROLLER, FEED	
21	RF5-1835-000		2	ROLLER, PICK-UP	
22	RB1-6528-000		2	SPRING, LEAF	
23	RB1-6543-000		1	LEVER, OPEN/CLOSE SENSING	
24	RB1-6544-000		2	LINK, LIFTER	
25	RB1-6545-000		1	BLOCK, PICK-UP LOCK, UPPER	
26	RB1-6546-000		1	BLOCK, PICK-UP LOCK, LOWER	
27	RB1-6547-000		1	TRIGGER, LIFTER, UPPER	
28	RB1-6548-000		1	TRIGGER, LIFTER, LOWER	
29	RB1-6549-000		1	ARM, LIFTER, UPPER	
30	RB1-6550-000		1	ARM, LIFTER, LOWER	
31	RB1-6551-000		2	ARM, CONNECTING	
32	RF5-1414-000		1	PLATE, GEAR	
33	RF5-1415-000		2	LEVER, LOCK, REAR	
33A	RB1-6533-000		2	LEVER, LOCK	
33B	RB1-6534-000		2	SPRING, LEAF	
34	RF5-1417-000		1	CAM, LIFT UP, UPPER	
35	RF5-1418-000		1	CAM, LIFT UP, LOWER	
36	RB1-6539-000		2	DAMPER	
37	RB1-6538-000		2	CLAW, LEFTER ARM	
38	RS5-2476-020		2	SPRING, TENSION	
39	RS5-2476-020		2	SPRING, TENSION	
40	RB1-6540-000		2	CLAW, LIFTER LOCK	
41	RB1-6541-000		2	LEVER, LEAD	
42	RS5-2478-000		2	SPRING, TENSION	
43	RS5-2479-000		3	SPRING, TENSION	
44	RB1-6535-000		1	CAM, PAPER PICK-UP	
45	RB1-6552-000		1	GUIDE, CABLE	
46	RB1-6555-000		1	CROSSMEMBER, UPPER	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
310 - 47	RB1-6556-000		1	HOLDER, SENSOR	
48	RB1-6557-000		1	FLAG, PAPER SENSING	
49	RB1-6558-020		1	SPRING, TORSION	
50	RF5-1421-000		4	ROLLER	
51	RG5-1859-000		1	CABLE, PICK-UP SENSOR	J13, J1205
52	WG8-0291-000		1	IC, TLP1230, PHOTO INTERRUPTER	PS2, J13
53	RS5-1179-000		1	BUSHING	
54	RB1-6559-000		1	CROSSMEMBER, GUIDE, UPPER	
55	RB1-6560-000		1	BLOCK, SUPPORT, UPPER	
56	RB1-6561-000		1	ROLLER, PAPER FEED	
57	RB1-6594-000		1	HOLDER, ROLLER	
58	RB1-6595-000		2	ROLLER	
59	RB1-6596-000		1	SHAFT, ROLLER	
60	RS5-0736-000		1	GEAR, 16T	
61	RS5-0737-000		1	GEAR, 40T	
62	RS5-0734-000		1	GEAR, 100T	
63	RS5-2475-000		1	SPRING, COMPRESSION	
64	RS5-1009-000		1	BUSHING	
65	RB1-6562-000		1	CROSSMEMBER, GUIDE, LOWER	
66	RB1-6563-000		1	BLOCK, SUPPORT, LOWER	
67	RS5-1179-000		1	BUSHING	
68	RB1-6564-000		1	GUIDE, PAPER PICK-UP, LOWER	
69	RB1-6597-000		1	BLOCK, ROLLER SUPPORT, UPPER	
70	RB1-6598-000		1	ROLLER, PAPER FEED, UPPER	
71	RF5-1421-000		4	ROLLER	
72	RS5-0736-000		1	GEAR, 16T	
73	RS5-0746-000		1	GEAR, 21T	
74	RS5-1009-000		1	BUSHING	
75	RS5-1179-000		2	BUSHING	
76	RB1-6526-000		1	SPRING, LEAF, 1	
77	RB1-6527-000		1	SPRING, LEAF, 2	
78	RB1-6567-000		1	PLATE, GROUNDING, 2	
79	RB1-6568-000		1	PLATE, GROUNDING, 3	
80	RB1-6579-000		1	PLATE, GROUNDING, 1	
81	RB1-6599-000		1	COVER, SMALL	
82	RH7-5127-000		1	SOLENOID	SL2, J1203
83	RS5-0738-000		1	GEAR, 31T/47T	
84	WG8-0291-000		1	IC, TLP1230, PHOTO INTERRUPTER	PS3, J14
85	RG5-1862-000		1	CABLE, RIGHT DOOR SENSOR	J14, J1206
86	RG5-1861-000		1	CABLE, PAPER PICK-UP	J219, J1201
87	RH7-1262-000		1	MOTOR, STEPPING	SMT1, J1202
88	RH7-5120-020		1	CLUTCH, ELECTROMAGNETIC	CL2, J1204
89	RS5-0732-020		2	GEAR, 31T	
90	RS5-0733-000		2	GEAR, 20T/41T	
91	RS5-0739-000		2	GEAR, 38T	
92	RS5-0740-000		2	GEAR, 18T	
93	RS5-0741-000		1	GEAR, 27T/36T	
94	RS5-0742-000		1	GEAR, 57T	
95	RS5-0743-000		1	GEAR, 20T	
96	RS5-0744-000		2	GEAR, 23T	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
310 - 97	RS5-0745-000		2	GEAR, 31T	
98	RS5-1004-000		2	BUSHING	
99	RS5-2481-000		2	SPRING, TENSION	
100	RS5-2482-000		4	SPRING, TENSION	
101	RS5-2484-020		2	SPRING, TENSION	
102	XA9-0836-000		14	SCREW, TP, M3X6	
103	RG5-1860-000		1	PAPER PICK-UP PCB ASS'Y	SEE FIGURE 900 PS1201-PS1208, J1201
104	RB1-6570-000		2	ARM, SEPARATION	
105	RB1-6571-000		2	JOINT	
106	RS5-2480-000		2	SPRING, COMPRESSION	
107	RS5-0735-000		1	GEAR, 32T	
108	RB1-6565-000		2	JOINT	
110	RB1-6542-000		1	FRAME, 1	
111	RB1-6566-000		1	FRAME, 2	
112	RB1-6584-000		1	PLATE, SIDE	
113	XA9-0686-000		11	SCREW, M3X6	
501	XB4-7401-007		6	SCREW,TAPPING,PAN HEAD,M4X10	
502	XD2-1100-502		13	RING, E	
503	XD2-1100-642		2	RING, E	
504	XD3-1200-122		2	PIN, SPRING	
505	XD3-2200-122		4	PIN, DOWEL	
506	XB4-7400-807		2	SCREW,TAPPING,TRUSS HEAD,M4X8	
507	XB4-7300-809		1	SCREW,TAPPING,TRUSS HEAD,M3X8	
508	XD3-1200-102		2	PIN, SPRING	
509	XB4-7401-009		1	SCREW,TAPPING,PAN HEAD,M4X10	
510	XD2-1100-402		2	RING, E	

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FIGURE 320 REGISTRATION ROLLER ASS'Y

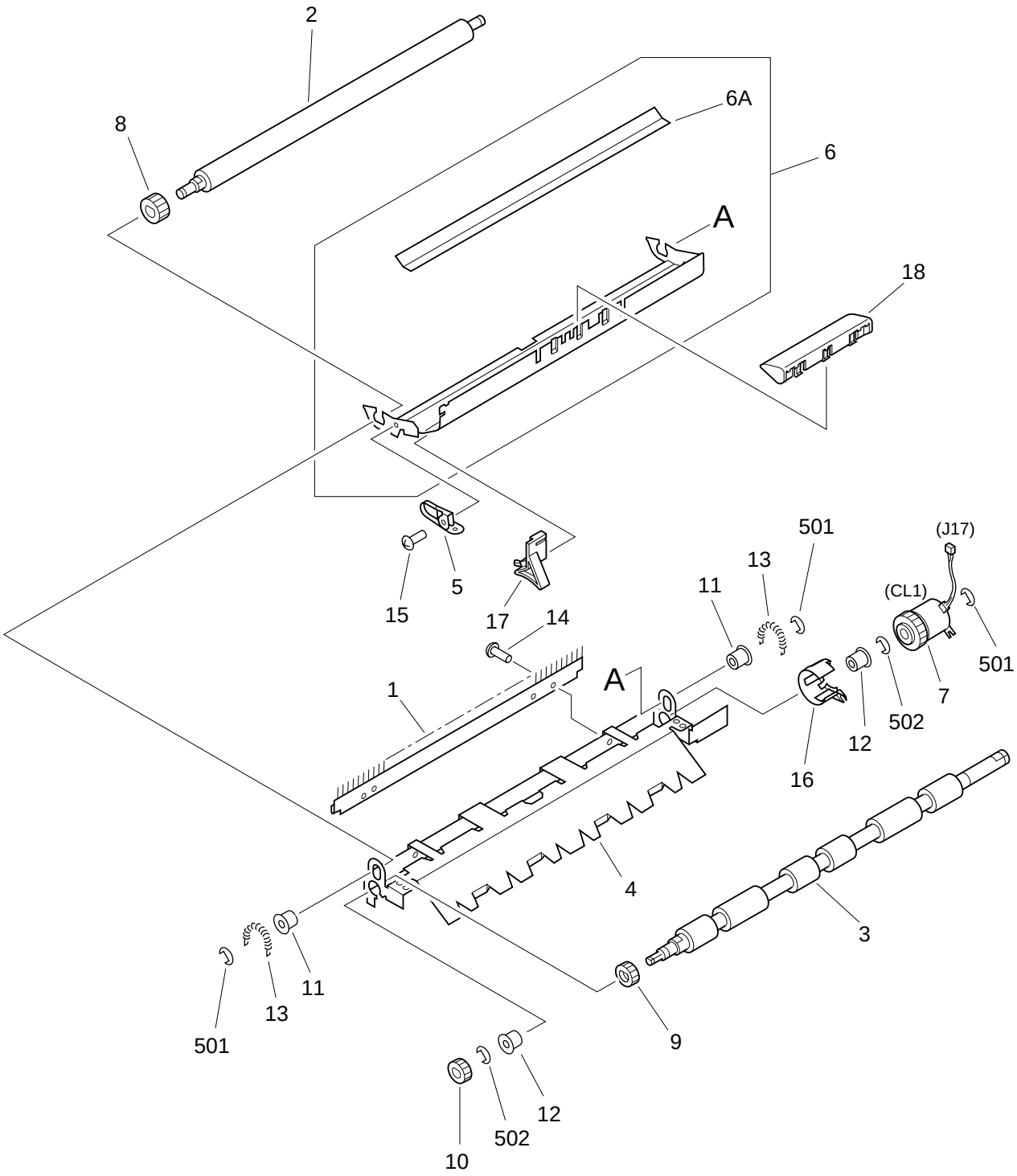

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
320 -	RG5-1833-040		1	REGISTRATION ROLLER ASS'Y	
1	RB1-6402-000		1	ELIMINATOR, STATIC CHARGE	
2	RB1-6404-000		1	ROLLER, REGISTRATION	
3	RB1-6405-000		1	ROLLER, REGISTRATION, LOWER	
4	RB1-6406-000		1	PLATE, GUIDE	
5	RB1-6436-000		1	SPRING, LEAF	
6	RF5-1390-000		1	PLATE, GUIDE	
6A	RB1-6400-000		1	SCRAPER	
7	RH7-5119-020		1	CLUTCH, ELECTROMAGNETIC	CL1, J17
8	RS5-0705-000		1	GEAR, 28T	
9	RS5-0706-000		1	GEAR, 32T	
10	RS5-0707-000		1	GEAR, 18T	
11	RS5-1175-000		2	BUSHING	
12	RS5-1176-000		2	BUSHING	
13	RS5-2461-000		2	SPRING, TENSION	
14	XA9-0434-000		2	SCREW, TP, M3X4	
15	XA9-0702-000		1	SCREW, W/WASHER, M3X6	
16	RB1-6785-000		1	COVER, REGISTRATION	
17	RB1-6786-000		1	RAIL, GUIDE	
18	RB1-6787-000		1	HOLDER, JAM CLEARING	
501	XD2-1100-502		3	RING, E	
502	XD2-1100-642		2	RING, E	

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FIGURE 330 FEEDER ASS'Y

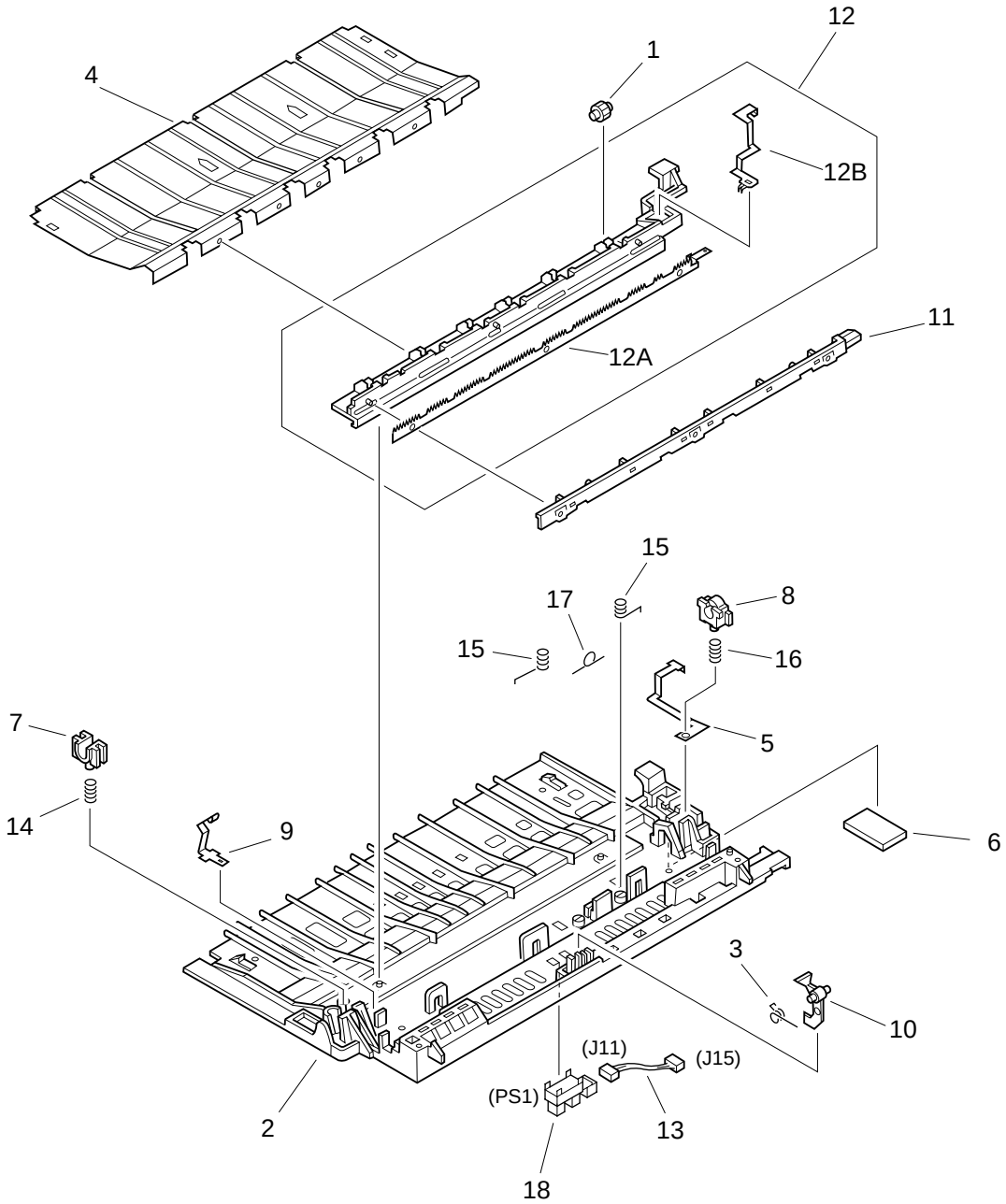

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
330 -	RG5-1834-030		1	FEEDER ASS'Y	
1	RB1-2253-000		6	ROLLER, FEED	
2	RB1-6407-000		1	GUIDE, PAPER	
3	RB1-6409-000		1	SPRING, TORSION	
4	RB1-6411-020		1	GUIDE, FEEDER	
5	RB1-6412-000		1	PLATE, TERMINAL	
6	RB1-6413-000		1	SHEET, INSULATING	
7	RB1-6414-000		1	BLOCK, SHAFT HOLDING, FRONT	
8	RB1-6415-000		1	BLOCK, SHAFT HOLDING, REAR	
9	RB1-6416-000		1	SPRING, LEAF	
10	RB1-6417-000		1	ARM, SENSOR	
11	RB1-6438-020		1	COVER, STATIC CHARGE ELIM'R	
12	RF5-1391-000		1	FRAME, TRANSFER	
12A	RB1-6408-000		1	ELIMINATOR, STATIC CHARGE	
12B	RB1-6437-000		1	PLATE, TERMINAL	
13	RG5-1843-000		1	REGIST, SENSOR CABLE ASS'Y	J11, J15
14	RS5-2463-000		1	SPRING, COMPRESSION	
15	RS5-2464-000		2	SPRING, COMPRESSION	
16	RS5-2466-000		1	SPRING, COMPRESSION	
17	RH9-0737-000		1	VARISTOR	
18	WG8-0291-000		1	IC, TLP1230, PHOTO INTERRUPTER	PS1, J11

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FIGURE 340 MULTI-PURPOSE TRAY PICK-UP ASS'Y

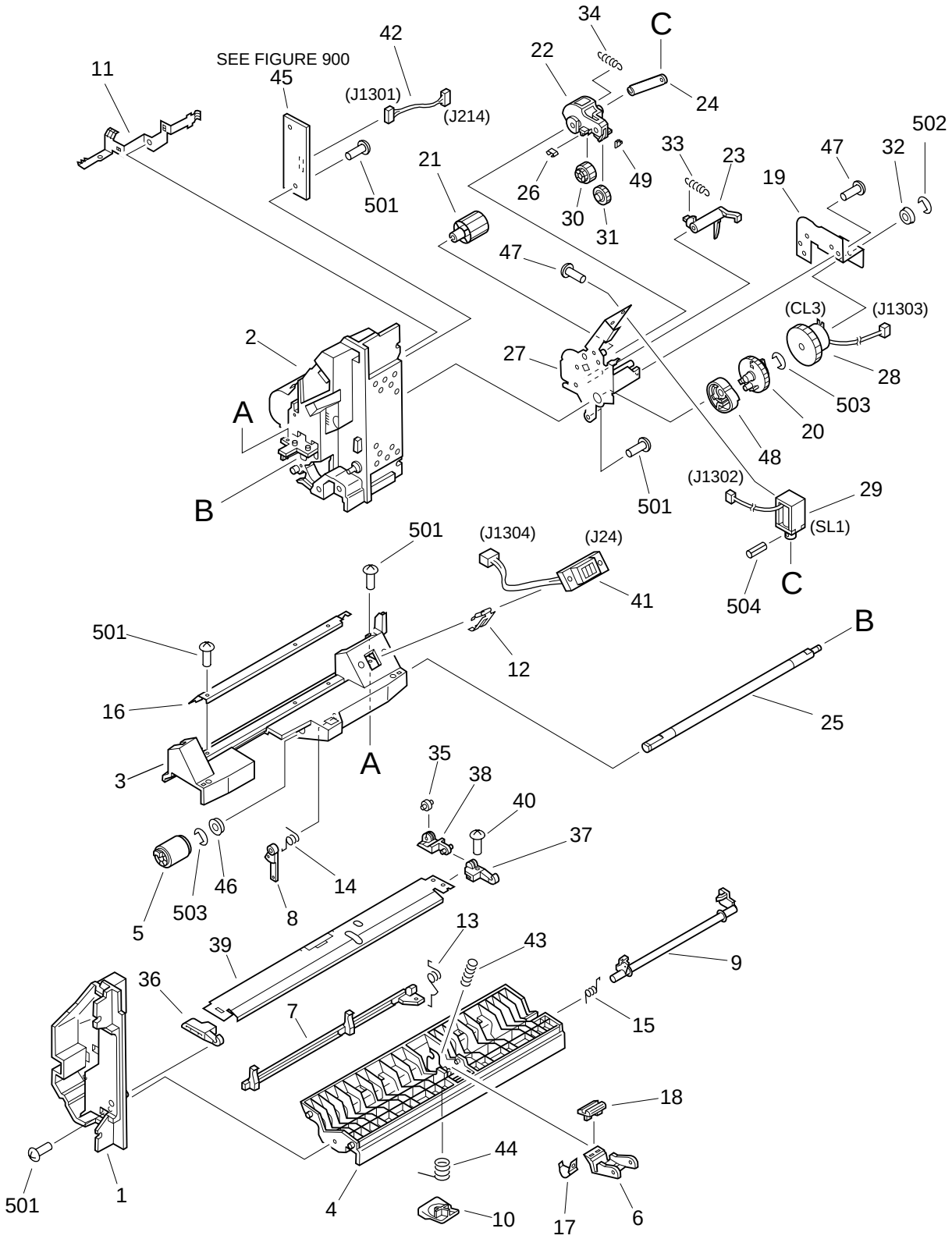

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
340 -	RG5-1880-110		1	MULTI-PURPOSE TRAY PICK-UP ASS'Y	
1	RB1-6726-000		1	FRAME, FRONT	
2	RB1-6727-040		1	FRAME, REAR	
3	RB1-6728-000		1	FRAME, UPPER	
4	RB1-6729-000		1	FRAME, LOWER	
5	RB1-6730-000		1	ROLLER, MP TRAY PICK-UP	
6	RF5-1452-000		1	HOLDER, SEPARATION PAD	
7	RB1-6732-000		1	ARM, STOP	
8	RB1-6733-000		1	ARM, SENSOR	
9	RB1-6734-000		1	FLAG, SENSOR	
10	RB1-6735-000		1	COVER, SPRING	
11	RB1-6736-000		1	PLATE, CONTINUITY, 1	
12	RB1-6737-000		1	PLATE, CONTINUITY, 2	
13	RB1-6738-000		1	SPRING, TORSION	
14	RB1-6739-000		1	SPRING, TORSION	
15	RB1-6740-000		1	SPRING, TORSION	
16	RB1-6746-000		1	CROSSMEMBER	
17	RB1-6748-000		1	PLATE, CONTINUITY, 3	
18	RF5-1455-000		1	PAD, SEPARATION	
19	RB1-6712-000		1	PLATE, SIDE	
20	RB1-6713-040		1	CAM	
21	RB1-6714-000		1	GEAR, 23T	
22	RB1-6715-000		1	ARM, SWING	
23	RB1-6716-000		1	ARM, AUXILIARY	
24	RB1-6717-000		1	LINK, SOLENOID	
25	RB1-6718-000		1	SHAFT, PICK-UP	
26	RB1-6747-000		1	DAMPER	
27	RF5-1453-000		1	PLATE, MP	
28	RH7-5121-020		1	CLUTCH, ELECTROMAGNETIC	CL3, J1303
29	RH7-5125-020		1	SOLENOID	SL1, J1302
30	RS5-0762-000		1	GEAR, 31T/31T	
31	RS5-0763-000		1	GEAR, 23T	
32	RS5-1021-000		1	BUSHING	
33	RS5-2495-000		1	SPRING, TENSION	
34	RS5-2496-000		1	SPRING, TENSION	
35	RB1-2152-000		1	ROLLER, ARM	
36	RB1-6721-000		1	ARM, FRONT	
37	RB1-6722-000		1	ARM, REAR	
38	RB1-6723-000		1	HOLDER, ROLLER	
39	RF5-1454-000		1	PLATE, MIDDLE	
40	XA9-0635-000		1	SCREW, W/WASHER, M3X7	
41	RG5-1885-000		1	CABLE, ENVELOPE FEEDER	J24, J1304
42	RG5-1886-000		1	CABLE, MULTI-PURPOSE	J214, J1301
43	RS5-2497-000		1	SPRING, COMPRESSION	
44	RS5-2498-000		1	SPRING, COMPRESSION	
45	RG5-1884-000		1	MULTI-PURPOSE TRAY PCB ASS'Y	SEE FIGURE 900 J1301
46	RS5-1119-000		1	BUSHING	
47	XA9-0434-000		4	SCREW, TP, M3X4	
48	RB1-6710-000		1	CAM	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
340 - 49	RB1-6707-000		1	CAP	
501	XB4-7401-007		9	SCREW,TAPPING,PAN HEAD,M4X10	
502	XD2-1100-402		1	RING, E	
503	XD2-1100-642		2	RING, E	
504	XD3-1300-082		1	PIN, SPRING	

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FIGURE 341 MULTI-PURPOSE TRAY ASS'Y

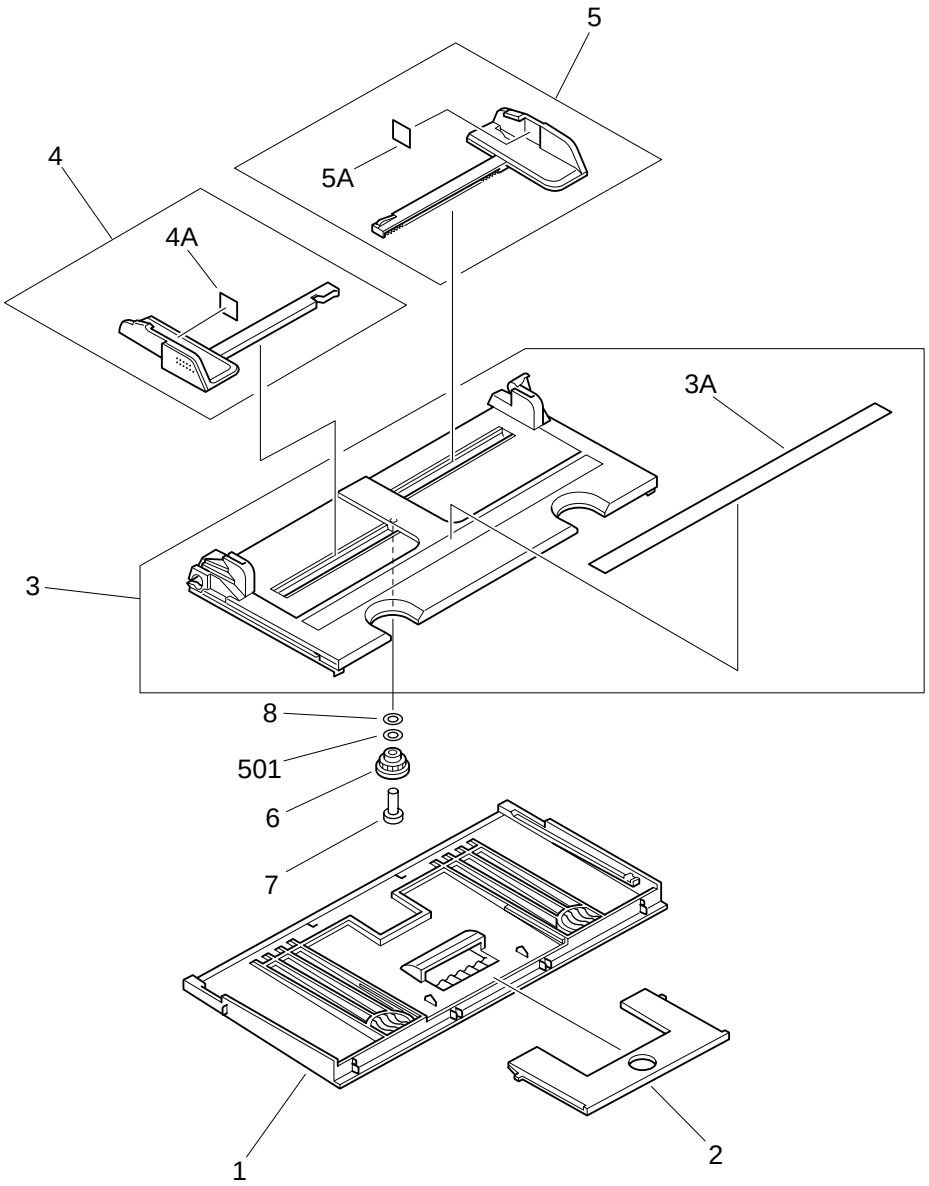

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
341 -	RG5-2407-030		1	MULTI-PURPOSE TRAY ASS'Y	
1	RB1-6962-000		1	COVER, TRAY	
2	RB1-6963-000		1	TRAY, SUB	
3	RF5-1745-020		1	TRAY	
3A	RS5-8660-020		1	LABEL, "SIZE"	
4	RF5-1746-000		1	BLOCK, SIZE, LEFT	
4A	RS2-8073-000		1	LABEL, "LIMIT"	
5	RF5-1747-000		1	BLOCK, SIZE, RIGHT	
5A	RS2-8073-000		1	LABEL, "LIMIT"	
6	RS5-0764-000		1	GEAR, 20T	
7	XA9-0851-000		1	SCREW,TP,M3X8	
8	XD9-0154-000		1	WASHER, SHIM	
501	XD1-1105-231		1	WASHER, SHIM	

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FIGURE 350 DELIVERY ASS'Y

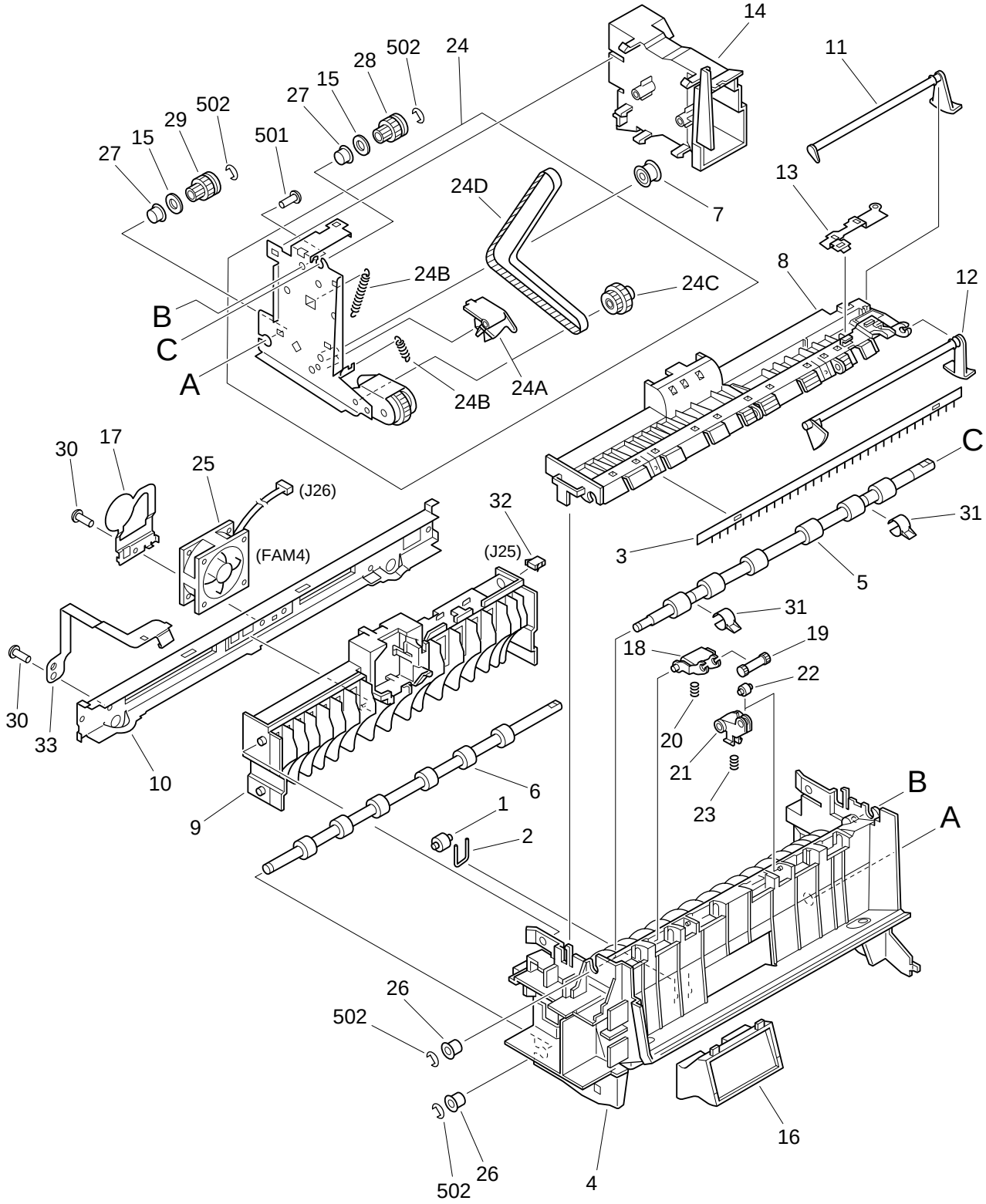

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
350 -	RG5-2410-020		1	DELIVERY ASS'Y	
1	RB1-6662-000		6	ROLLER	
2	RB1-6663-000		6	SPRING	
3	RB1-6666-000		1	ELIMINATOR, STATIC CHARGE	
4	RB1-6968-000		1	FRAME	
5	RB1-6686-000		1	ROLLER, DELIVERY	
6	RB1-6687-000		1	ROLLER, FEEDER	
7	RB1-6688-000		1	PULLEY, IDLER	
8	RB1-6689-000		1	GUIDE, UPPER	
9	RB1-6690-000		1	GUIDE, FEEDER	
10	RB1-6691-000		1	CROSSMEMBER, DELIVERY	
11	RB1-6692-000		1	LEVER, PAPER SENSING	
12	RB1-6693-020		1	LEVER, PAPER HEIGHT	
13	RB1-6694-000		1	PLATE, GROUNDING	
14	RB1-6695-000		1	DUCT, FAN	
15	RB1-6696-000		2	FLANGE, PULLEY	
16	RB1-6969-000		1	COVER, SWING LIMIT	
17	RB1-6701-000		1	PLATE, FAN GROUNDING	
18	RB1-6678-020		6	HOLDER, ROLLER	
19	RB1-6679-000		6	ROLLER	
20	RS5-2491-000		6	SPRING, COMPRESSION	
21	RB1-6681-000		2	HOLDER, ROLLER	
22	RB1-6680-000		2	ROLLER	
23	RS5-2491-000		2	SPRING, COMPRESSION	
24	RF5-1449-020		1	FACE-DOWN DELIVERY DRIVE ASS'Y	
24A	RB1-6684-000		1	LEVER, RELEASE	
24B	RS5-2490-000		2	SPRING, TENSION	
24C	RS5-3093-000		1	GEAR, 24T	
24D	XF9-0564-000		1	BELT, TIMING	
25	RH7-1289-000		1	FAN	FAM4, J26
26	RS5-1060-000		2	BUSHING	
27	RS5-1101-000		2	BUSHING, CONDUCTIVE	
28	RS5-3094-000		1	PULLEY, 14T	
29	RS5-3095-000		1	PULLEY, 15T/GEAR, 20T	
30	XA9-0686-000		2	SCREW, M3X6	
31	RB1-6703-000		2	GUIDE, DELIVERY	
32	VS1-5057-003		1	CONNECTOR, 3P	J25
33	RB1-6704-000		1	PLATE, STATIC CHARGE	
501	XB4-7401-009		1	SCREW,TAPPING,PAN HEAD,M4X10	
502	XD2-1100-402		4	RING, E	

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FIGURE 351 DELIVERY FRAME ASS'Y

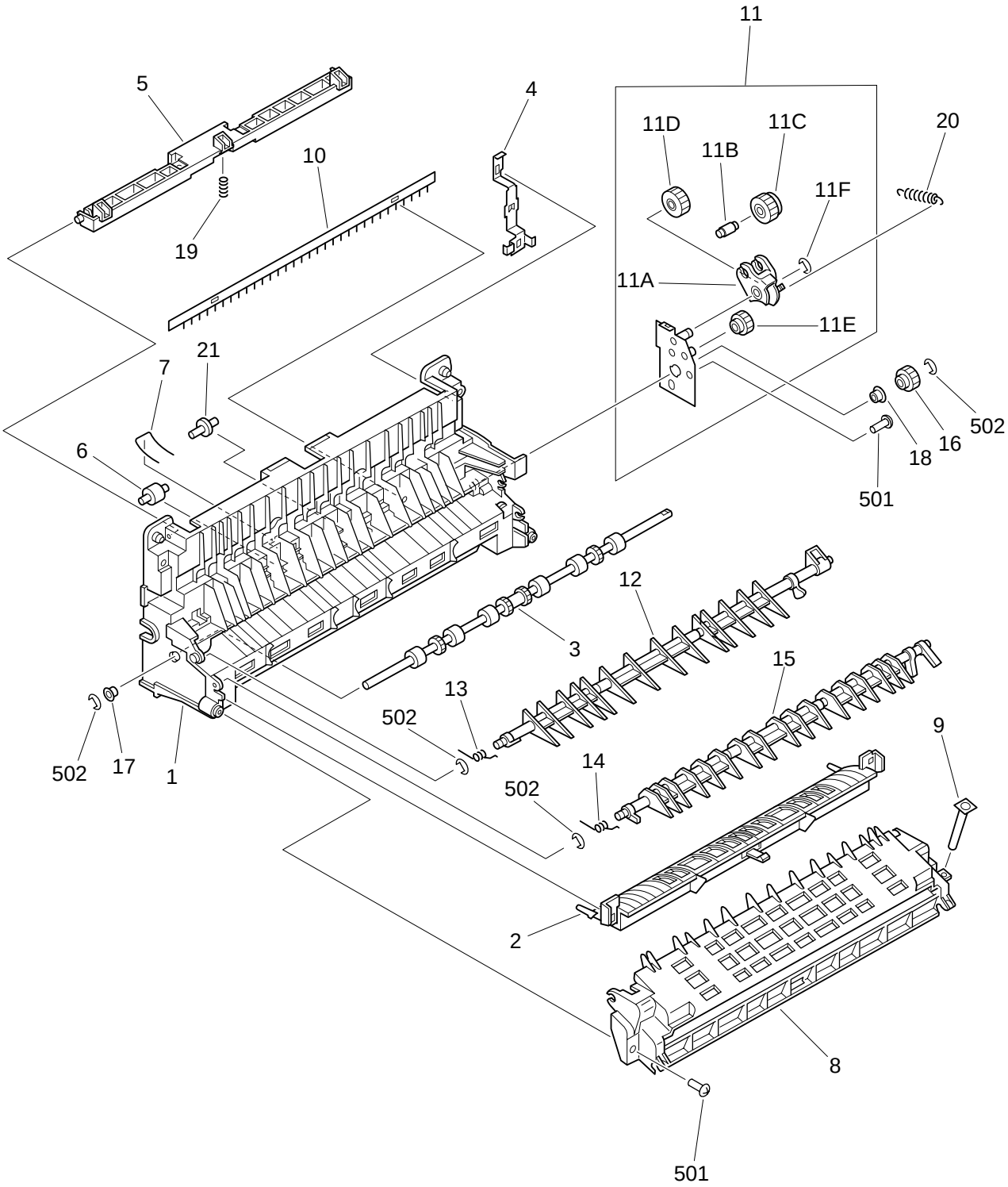

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
351 -	RG9-1151-000		1	DELIVERY FRAME ASS'Y	
1	RB9-0248-000		1	FRAME, DELIVERY	
2	RB9-0249-000		1	GUIDE, FEEDER	
3	RB9-0250-000		1	ROLLER, DELIVERY	
4	RB9-0251-000		1	PLATE, STATIC CHARGE	
5	RB1-6966-000		1	LEVER	
6	RB1-6662-000		6	ROLLER	
7	RB1-6663-000		6	SPRING	
8	RB9-0253-000		1	GUIDE, DELIVERY	
9	RB9-0254-000		1	PIN, FLAPPER	
10	RB1-6666-000		1	ELIMINATOR, STATIC CHARGE	
11	RF9-1249-000		1	FACE-UP DELIVERY DRIVE ASS'Y	
11A	RB9-0245-000		1	LEVER, SWING	
11B	RB1-6653-000		1	SHAFT, GEAR	
11C	RA9-1124-000		1	GEAR, 18T	
11D	RA9-1125-000		1	GEAR, 19T	
11E	RA9-1126-000		1	GEAR, 17T	
11F	XD2-1100-502		1	RING, E	
12	RB9-0246-000		1	FLAPPER	
13	RB1-6655-000		1	SPRING, TORSION	
14	RB1-6655-000		1	SPRING, TORSION	
15	RB9-0247-000		1	FLAPPER, FU	
16	RA9-1127-000		1	GEAR, 20T	
17	RS5-1060-000		1	BUSHING	
18	RS5-1101-000		1	BUSHING, CONDUCTIVE	
19	RS5-2489-000		1	SPRING, COMPRESSION	
20	RS5-2490-000		1	SPRING, TENSION	
21	RB9-0255-000		1	ROLLER	
501	XB4-7401-009		3	SCREW,TAPPING,PAN HEAD,M4X10	
502	XD2-1100-402		4	RING, E	

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FIGURE 810 FIXING ASS'Y (1/2)

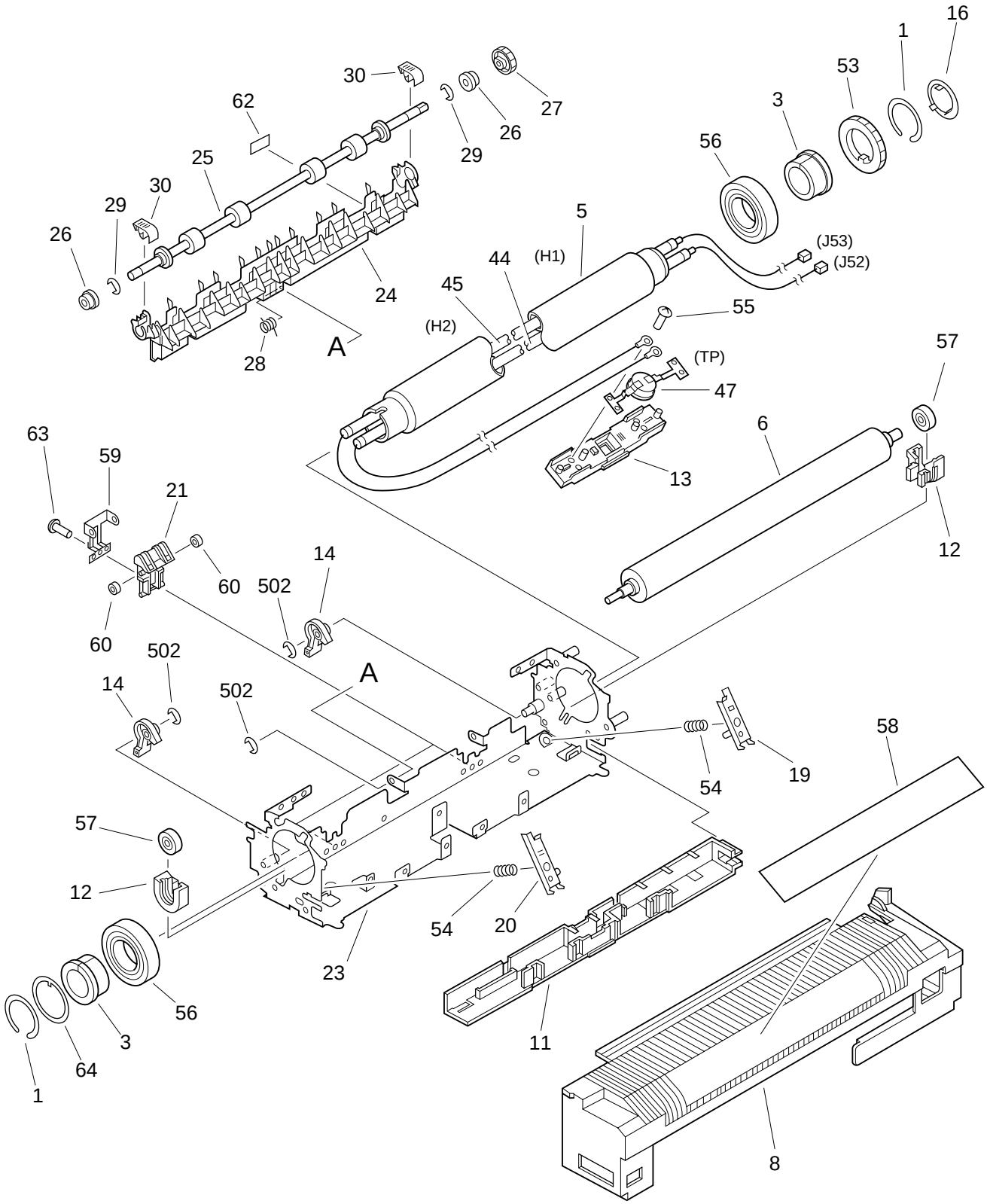

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FIGURE 810 FIXING ASS'Y (2/2)

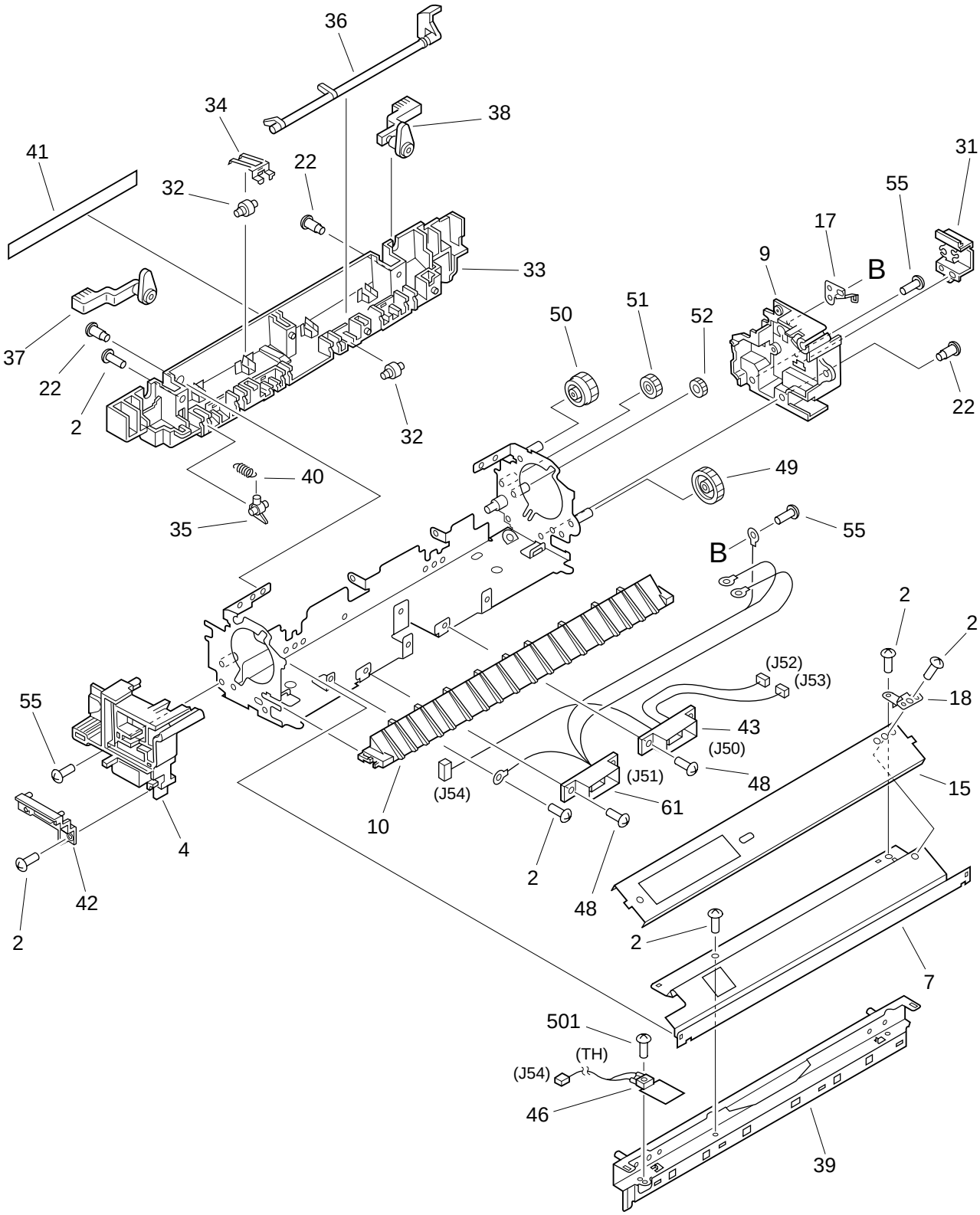

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
810 -	RG5-3686-000		1	FIXING ASS'Y	100-120V
	RG5-3687-000		1	FIXING ASS'Y	220-240V
1	FA3-8894-000		2	RING, RETAINING	
2	FA9-1449-000		6	SCREW, TRUSS HEAD, W/WASHER	
3	FB1-6823-000		2	BUSHING	
4	RB1-6618-000		1	COVER, RIGHT	
5	RB1-6622-050		1	ROLLER, UPPER	
6	RB1-6623-030		1	ROLLER, LOWER	
7	RB1-6624-000		1	COVER, FIXING ROLLER	
8	RB1-6625-000		1	COVER, UPPER	
9	RB1-6626-000		1	COVER, LEFT	
10	RB1-6627-000		1	GUIDE, ENTRANCE	
11	RB1-6628-000		1	GUIDE, CABLE	
12	RB1-6629-000		2	HOLDER, BUSHING	
13	RB1-6630-000		1	HOLDER, THERMOSTAT	
14	RB1-6631-000		2	LEVER, CONTROL	
15	RB1-6633-000		1	PLATE, THERMOSWITCH	
16	RB1-6634-000		1	RING, GROUNDING	
17	RB1-6635-000		1	PLATE, GROUNDING	
18	RB1-6636-000		1	PLATE, GROUNDING	
19	RB1-6637-000		1	PLATE, RIGHT	
20	RB1-6638-000		1	PLATE, LEFT	
21	RB1-6639-030		2	GUIDE, SEPARATION	
22	RF5-0716-000		3	SCREW, STEPPED, W/WASHER, M3	
23	RF5-1431-000		1	FRAME, FIXING	
24	RB1-6605-030		1	GUIDE, SEPARATION	
25	RB1-6606-000		1	ROLLER, DELIVERY	
26	RS1-1087-000		2	BUSHING	
27	RS5-0748-000		1	GEAR, 20T	
28	RS5-2485-000		1	SPRING, TORSION	
29	XD2-1100-502		2	RING, E	
30	RB1-6642-000		2	GUIDE, SEPARATION	
31	RF5-1433-000		1	HOLDER, HEATER	
32	RB1-1447-000		6	ROLLER, DELIVERY, FIXING	
33	RB1-6611-020		1	GUIDE, SEPARATION, UPPER	
34	RB1-6612-000		4	PLATE, ROLLER HOLDER	
35	RB1-6613-000		6	CLAW, SEPARATION	
36	RB1-6614-000		1	LEVER, DELIVERY SENSING	
37	RB1-6615-020		1	LEVER, HOLDING, RIGHT	
38	RB1-6616-020		1	LEVER, HOLDING, LEFT	
39	RF5-1435-000		1	CROSSMEMBER, SEPARATION GUIDE	
40	RS5-2486-020		6	SPRING, TENSION	
41	RS5-8380-000		1	LABEL, "CAUTION"	
42	RG5-1865-000		1	DIODE HOLDER ASS'Y	
43	RG5-1867-000		1	FIXING, CABLE, 2	J50, J52-J54
44	RH7-4070-000		1	HEATER, HALOGEN, 120V 500W	100-120V, H1, J52
44	RH7-4074-000		1	HEATER, HALOGEN, 240V 500W	220-240V, H1, J52
45	RH7-4071-000		1	HEATER, HALOGEN, 120V 500W	100-120V, H2, J53
	RH7-4075-000		1	HEATER, HALOGEN, 240V 500W	220-240V, H2, J53
46	RH7-7064-000		1	SURFACE TEMP. SENSOR UNIT	TH, J54

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
810 - 47	RH7-7065-000		1	THERMOSWITCH	TP
48	RS1-9004-000		4	SCREW, STEPPED	
49	RS5-0749-000		1	GEAR, 29T	
50	RS5-0750-000		1	GEAR, 25T	
51	RS5-0751-000		1	GEAR, 18T	
52	RS5-0752-000		1	GEAR, 14T	
53	RS5-0753-000		1	GEAR, 48T	
54	RS5-2487-000		2	SPRING, COMPRESSION	
55	XA9-0233-000		9	SCREW, W/WASHER, M3X6	
56	XG9-0266-000		2	BEARING	
57	XG9-0331-000		2	BEARING, BALL	
58	RS5-8591-000		1	LABEL, CAUTION	
59	RB1-6640-020		2	PLATE, COMPRESSION GUIDE	
60	RB1-6641-000		4	ROLLER	
61	RG5-1872-000		1	FIXING, CABLE, 3	J51
62	RS5-8602-000		1	LABEL	100-120V
	RS5-8603-000		1	LABEL	220-240V
63	XA9-0280-000		2	SCREW, TAP TIGHT, M3X6	
64	RB1-6644-000		1	WASHER	
501	XB6-7300-805		1	SCREW, TP, M3X8	
502	XD2-1100-502		3	RING, E	

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FIGURE 900 PCB ASS'Y LOCATION DIAGRAM

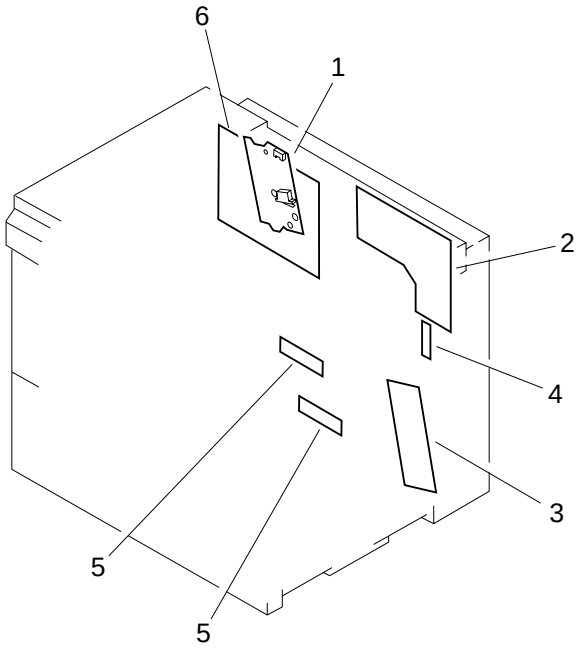

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
900 -	NPN		RF	PCB ASS'Y LOCATION DIAGRAM	
1	RG5-1846-000		1	SWITCH/SENSOR PCB ASS'Y	
2	RG5-1844-050		1	DC CONTROLLER PCB ASS'Y	
3	RG5-1860-000		1	PAPER PICK-UP PCB ASS'Y	
4	RG5-1884-000		1	MULTI-PURPOSE TRAY PCB ASS'Y	
5	RG5-1845-000		2	CASSETTE-SIZE SENSING PCB ASSY	
6	RG1-3736-00V		1	VIDEO CONTROLLER PCB ASS'Y	100-120V USA ORIG. PARTS (LPS)
	RG1-3762-00V		1	VIDEO CONTROLLER PCB ASS'Y	220-240V USA ORIG. PARTS (LPS)

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DUPLEX UNIT

DUPLEX UNIT
[R77-1001]

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FIGURE D10

DUPLEX UNIT MAIN BODY (1/2)

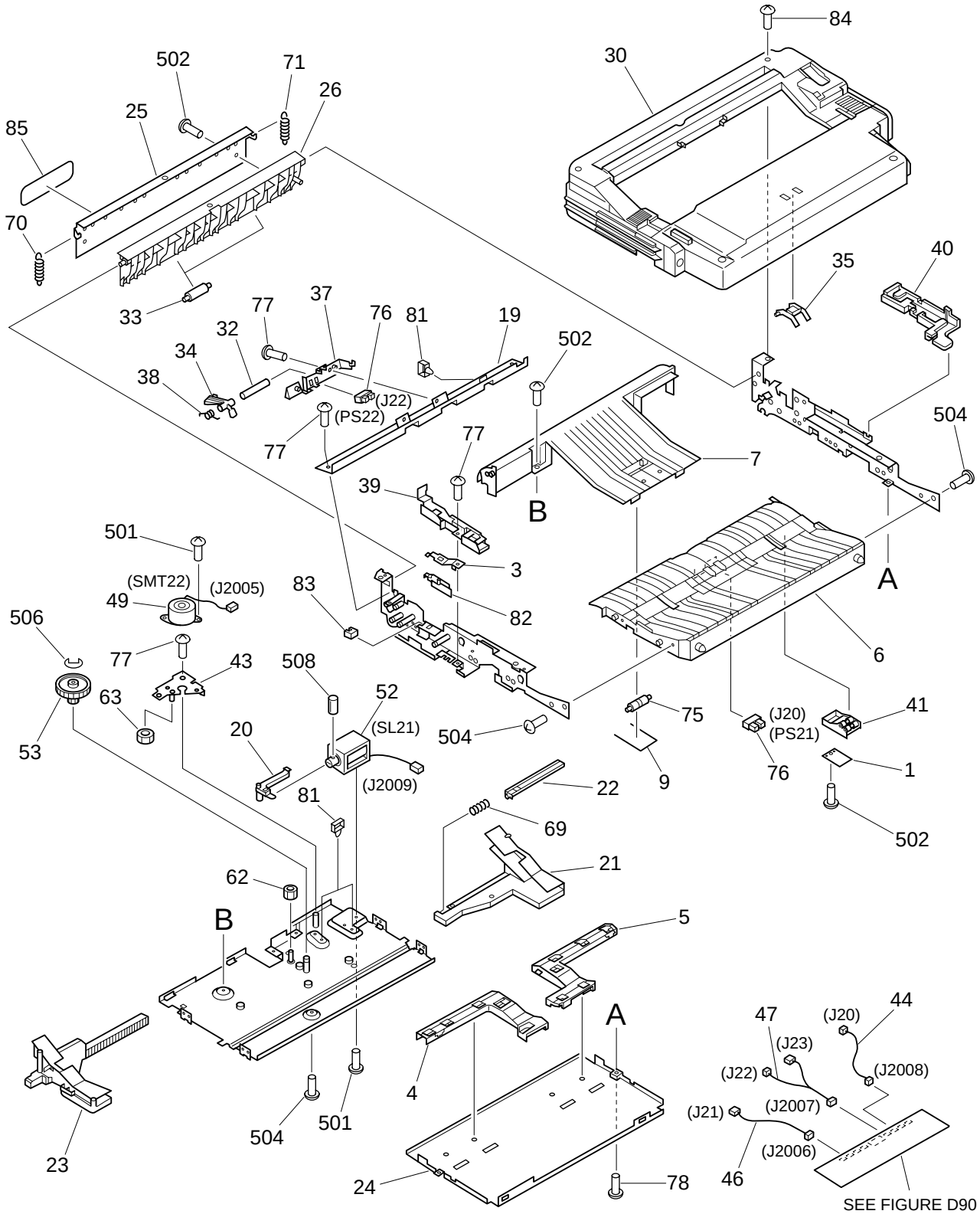

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FIGURE D10 DUPLEX UNIT MAIN BODY (2/2)

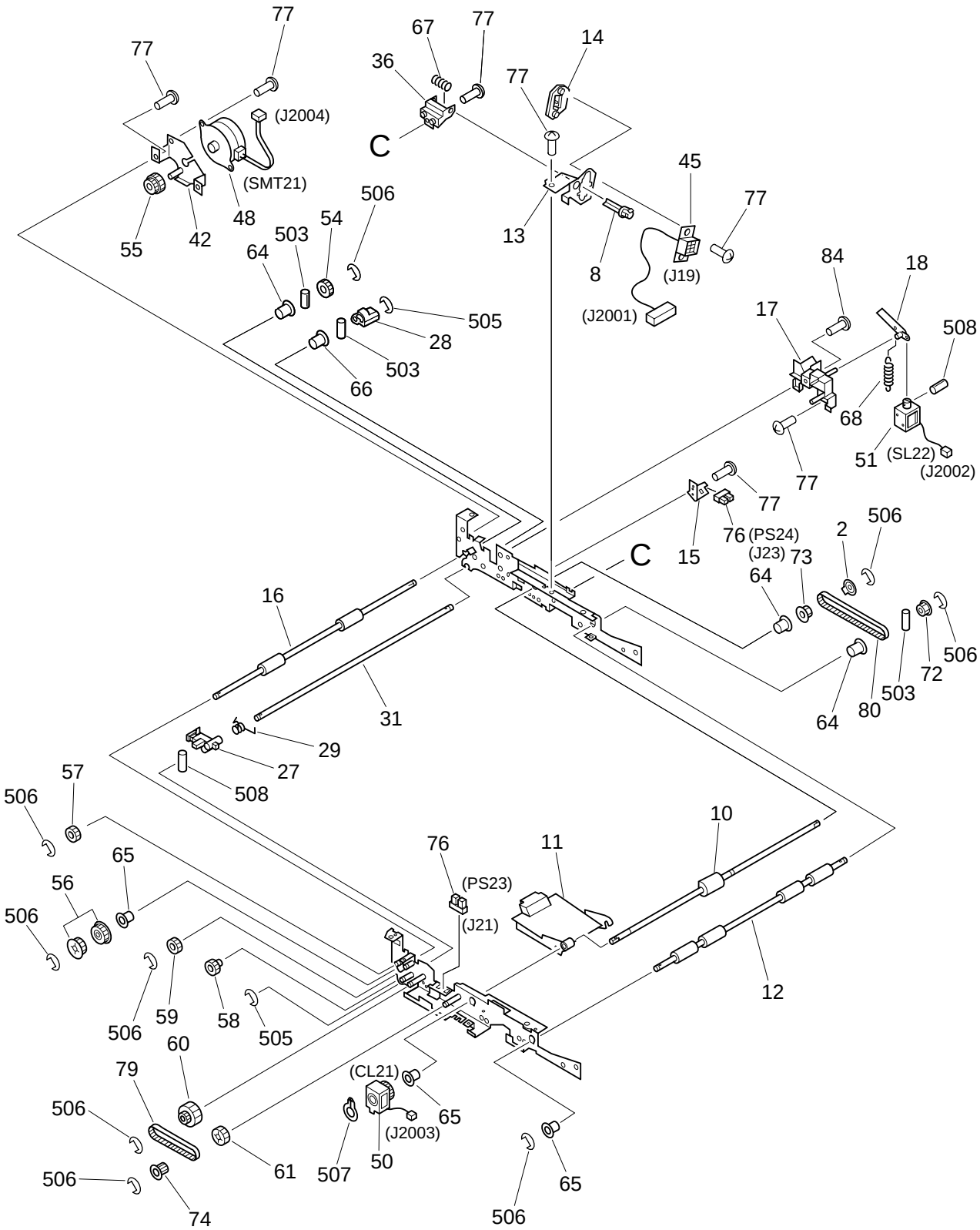

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
D10 -	NPN		RF	DUPLEX UNIT MAIN BODY	
1	RB1-6810-000		4	SPRING, LEAF	
2	RB1-6811-000		1	FLAG, SENSOR	
3	RB1-6812-000		1	PLATE, GROUNDING	
4	RB1-6813-000		1	GUIDE, CABLE, FRONT	
5	RB1-6814-000		1	GUIDE, CABLE, REAR	
6	RB1-6815-000		1	GUIDE, LOWER, RIGHT	
7	RB1-6816-020		1	GUIDE, LOWER, LEFT	
8	RB1-6817-000		2	SHAFT	
9	RB1-6819-000		1	SPRING, COMPRESSION	
10	RB1-6822-000		1	ROLLER, DUPLEXING, 1	
11	RB1-6823-000		1	GUIDE, DUPLEXING	
12	RB1-6824-000		1	ROLLER, DUPLEXING, 2	
13	RB1-6825-000		1	PLATE, MOUNT, CONNECTOR	
14	RB1-6826-000		1	HOLDER, CONNECTOR	
15	RB1-6827-000		1	MOUNT, SENSOR	
16	RB1-6828-000		1	ROLLER, REVERSE	
17	RB1-6830-000		1	COVER, SOLENOID	
18	RB1-6831-000		1	LEVER, SWING	
19	RB1-6832-000		1	PLATE, TOP	
20	RB1-6834-000		1	LEVER, PRESSURE	
21	RB1-6835-020		1	GUIDE, SIDE REGISTRATION, REAR	
22	RB1-6836-000		1	RACK, RY	
23	RB1-6837-020		1	GUIDE,SIDE REGIATRATION,FRONT	
24	RB1-6839-000		1	COVER, PCB	
25	RB1-6840-000		1	PLATE, REINFORCEMENT	
26	RB1-6841-000		1	GUIDE, SWITCH	
27	RB1-6842-000		1	KNOB, RF	
28	RB1-6843-000		1	KNOB, RR	
29	RB1-6844-000		1	SPRING, TORSION	
30	RB1-6845-000		1	GUIDE, UPPER	
31	RB1-6846-000		1	SHAFT, KNOB	
32	RB1-6847-000		1	SHAFT, SENSOR	
33	RB1-6848-000		2	ROLLER	
34	RB1-6849-000		1	LEVER, SENSOR, H	
35	RB1-6850-000		1	LEVER, SENSOR, R	
36	RB1-6851-000		1	HOLDER, MOUNT	
37	RB1-6852-000		1	COVER, SENSOR	
38	RB1-6853-000		1	SPRING, TORSION	
39	RB1-6854-000		1	GUIDE, CABLE, FRONT	
40	RB1-6855-000		1	GUIDE, CABLE, REAR	
41	RF5-1476-000		4	ROLLER HOLDER	
42	RF5-1478-000		1	PLATE, MOTOR, H	
43	RF5-1480-000		1	PLATE, MOTOR, Y	
44	RG5-1905-000		1	PAPER SENSOR CABLE ASS'Y	J20, J2008
45	RG5-1906-000		1	DUPLEXING CABLE, 2	J19, J2001
46	RG5-1907-000		1	SIDE REGISTRATION SENSOR CABLE	J21, J2006
47	RG5-1929-000		1	DUPLEXING REVERSE SENSOR CABLE	J22, J23, J2007
48	RH7-1263-000		1	MOTOR, STEPPING	SMT21, J2004
49	RH7-1264-000		1	MOTOR, STEPPING	SMT22, J2005

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
D10 - 50	RH7-5122-000		1	CLUTCH, ELECTROMAGNETIC	CL21, J2003
51	RH7-5129-000		1	SOLENOID	SL22, J2002
52	RH7-5130-000		1	SOLENOID	SL21, J2009
53	RS5-0068-000		1	GEAR, 17T/70T	
54	RS5-0766-000		1	GEAR, 26T	
55	RS5-0767-000		1	GEAR, 23T/37T	
56	RS5-0768-000		2	GEAR, 27T	
57	RS5-0769-000		1	GEAR, 21T	
58	RS5-0770-000		1	GEAR, 24T	
59	RS5-0771-000		1	GEAR, 20T	
60	RS5-0772-000		1	PULLEY, 16T/GEAR, 37T	
61	RS5-0773-000		1	GEAR, 26T	
62	RS5-0774-000		1	GEAR, 25T	
63	RS5-0775-000		1	GEAR, 33T	
64	RS5-1001-000		3	BUSHING	
65	RS5-1002-000		3	BUSHING	
66	RS5-1021-000		1	BUSHING	
67	RS5-2471-000		2	SPRING, COMPRESSION	
68	RS5-2472-000		1	SPRING, TENSION	
69	RS5-2473-000		1	SPRING, COMPRESSION	
70	RS5-2474-000		1	SPRING, TENSION	
71	RS5-2483-000		1	SPRING, TENSION	
72	RS5-3099-000		1	PULLEY, 15T	
73	RS5-3100-000		1	PULLEY, 20T	
74	RS5-3101-000		1	PULLEY, 14T	
75	RS5-6173-000		1	ROLLER	
76	WG8-0291-000		4	IC, TLP1230, PHOTO INTERRUPTER	PS21-PS24, J20-J23
77	XA9-0267-000		18	SCREW, TP, M3X6	
78	XA9-0527-000		2	SCREW, TP	
79	XF9-0565-000		1	BELT, TIMING	
80	XF9-0566-000		1	BELT, TIMING	
81	WT2-5026-000		4	CLIP, CABLE	
82	RB1-6809-000		1	HOLDER, GROUNDING PLATE	
83	WT2-5056-000		1	CLIP, CABLE	
84	XA9-0547-000		8	SCREW, TP, M3X6	
85	RS5-8595-000		1	LABEL, OPERATION	
501	XB1-2300-407		4	SCREW,MACH.,TRUSS HEAD,M3X4	
502	XB4-7300-607		3	SCREW,TAPPING,TRUSS HEAD,M3X6	
503	XD3-2200-102		2	PIN, DOWEL	
504	XB4-7401-007		5	SCREW,TAPPING,PAN HEAD,M4X10	
505	XD2-1100-402		3	RING, E	
506	XD2-1100-502		10	RING, E	
507	XD2-2100-602		1	RING, GRIP	
508	XD3-1160-102		3	PIN, SPRING	

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FIGURE D90 PCB ASS'Y LOCATION DIAGRAM

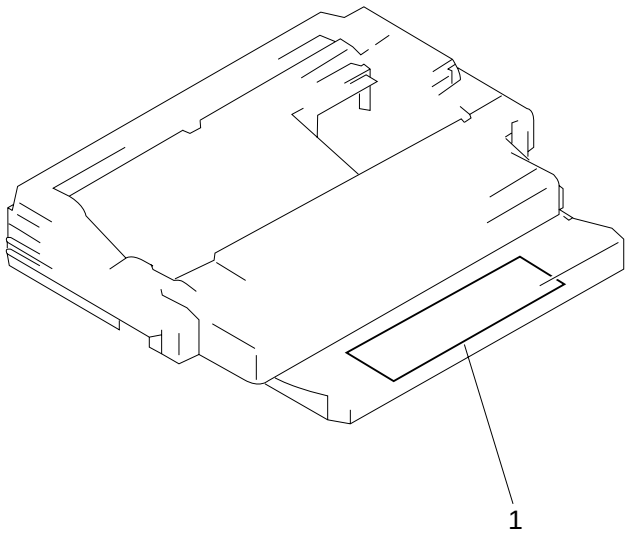

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
D90 -	NPN		RF	PCB ASS'Y LOCATION DIAGRAM	
1	RG5-1904-050		1	DUPLEXING DRIVER PCB ASS'Y	

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ENVELOPE FEEDER

ENVELOPE FEEDER
[R77-1008]

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FIGURE FA

ASSEMBLY LOCATION DIAGRAM

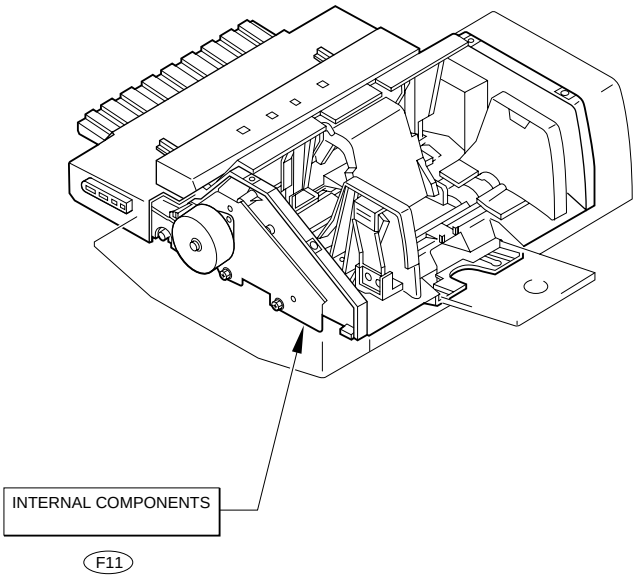

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FIGURE F10 EXTERNAL COVERS, PANELS, ETC.

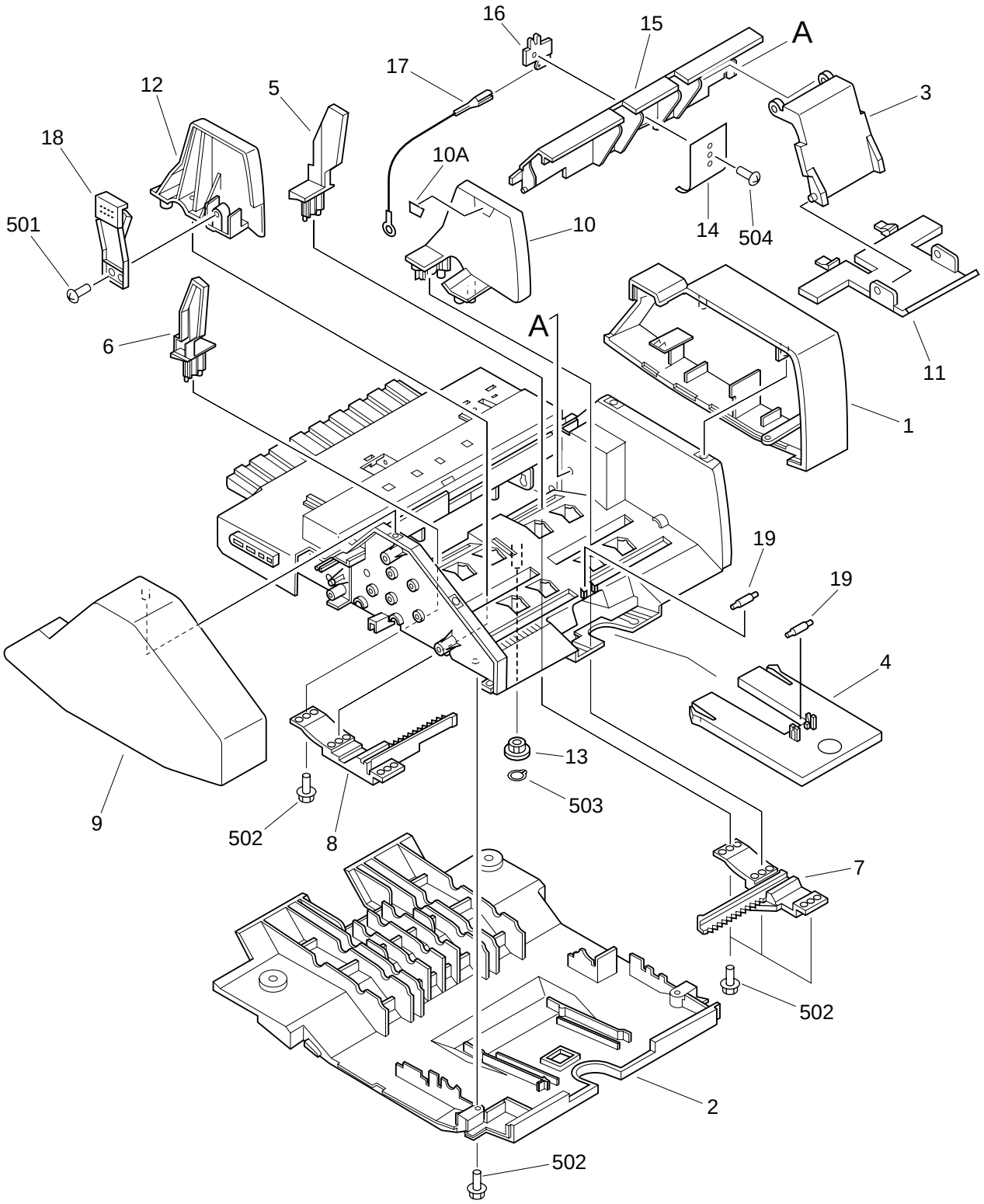

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
F10 -	NPN		RF	EXTERNAL COVERS, PANELS, ETC.	
1	RB1-8378-000		1	COVER, RIGHT	
2	RB1-8379-000		1	COVER, LOWER	
3	RB1-8380-000		1	ARM, WEIGHT	
4	RB1-8381-000		1	TRAY, REAR	
5	RB1-8384-000		1	HOLDER, LIMIT, RIGHT, 1	
6	RB1-8386-000		1	HOLDER, LIMIT, LEFT, 1	
7	RB1-8078-000		1	LACK, RIGHT	
8	RB1-8079-000		1	LACK, LEFT	
9	RF5-1786-000		1	COVER, LEFT	
10	RF5-1787-000		1	HOLDER, LIMIT, RIGHT, 2	
10A	RS2-8168-000		1	LABEL, "LIMIT"	
11	RF5-1788-000		1	WEIGHT	
12	RB1-8387-000		1	HOLDER, LIMIT, LEFT, 2	
13	RS5-0880-000		1	GEAR, 16T	
14	RB1-8075-000		1	PLATE, GUIDE	
15	RB1-8390-000		1	PANEL, LIMIT	
16	RA2-1576-000		1	NUT, PLATE	
17	RG5-2287-000		1	FG CABLE	
18	RB1-8393-000		1	LEVER, LIMIT, LEFT, 2	
19	RB1-8394-000		2	ROLLER	
501	XB4-7401-007		2	SCREW,TAPPING,PAN HEAD,M4X10	
502	XB4-7401-207		10	SCREW,TAPPING,PAN HEAD,M4X12	
503	XD2-2100-602		1	RING, GRIP	
504	XB5-6300-807		1	SCREW, TP, M3X8	

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FIGURE F11

INTERNAL COMPONENTS(1/2)

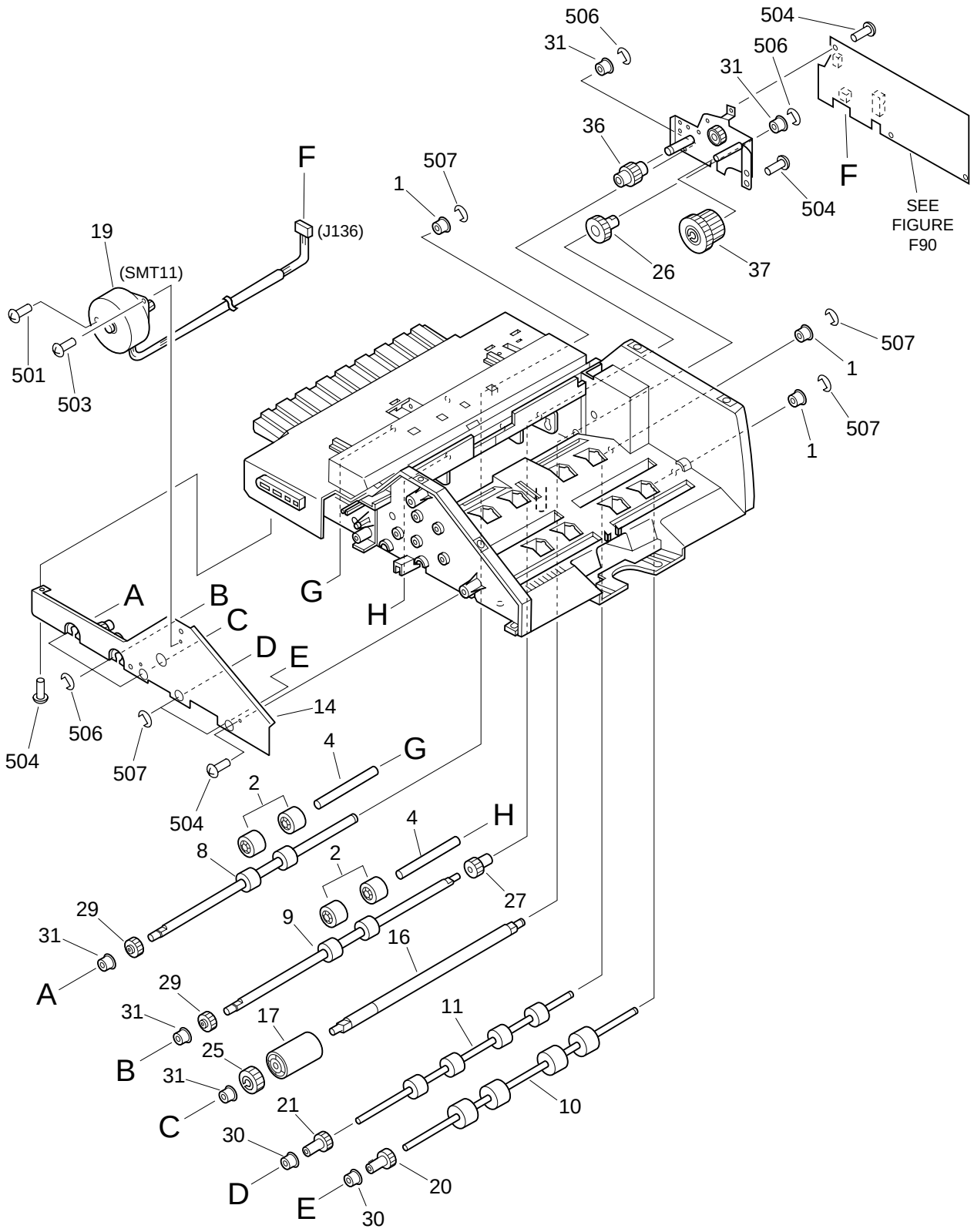

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FIGURE F11 INTERNAL COMPONENTS(2/2)

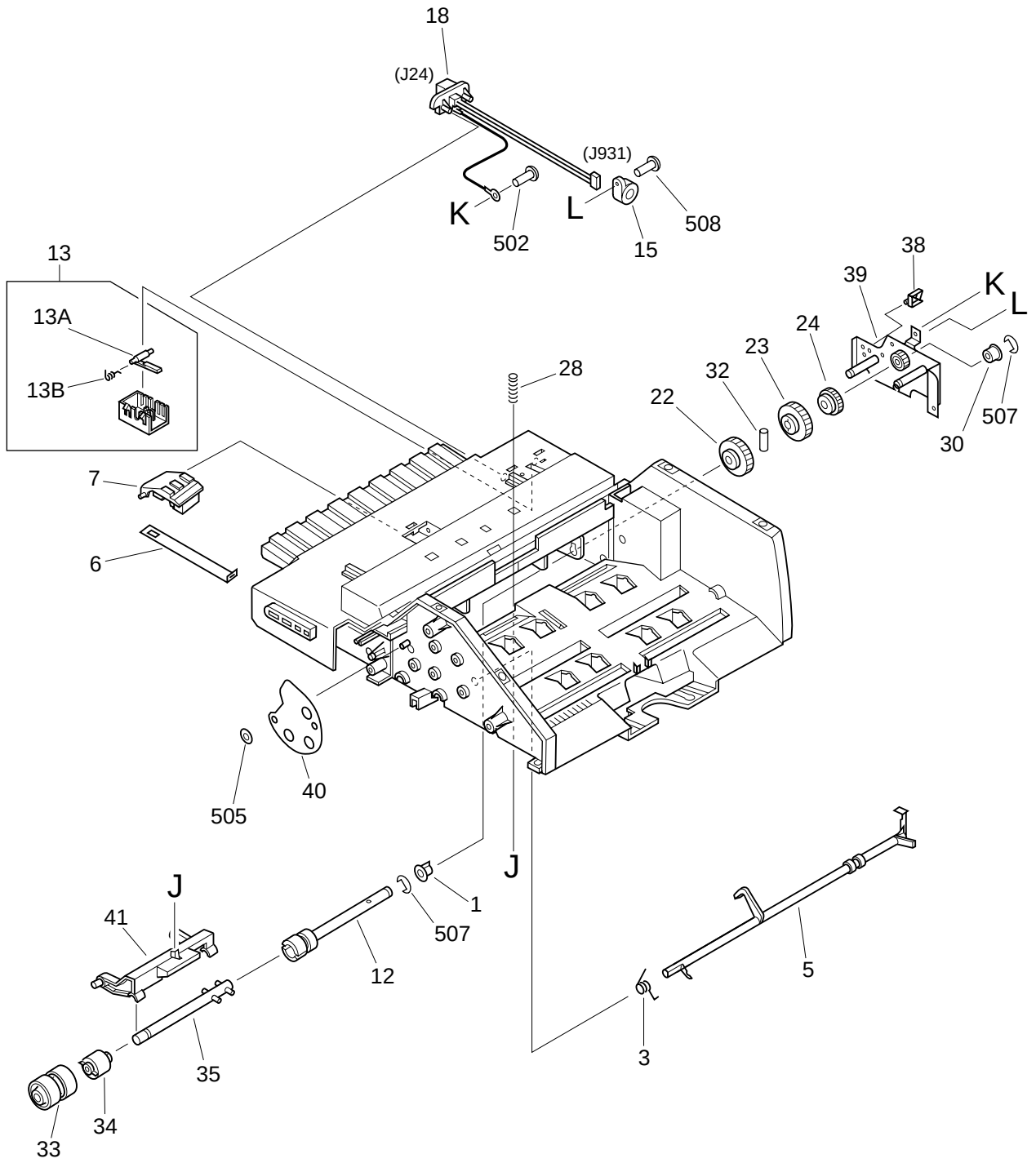

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
F11 -	NPN		RF	INTERNAL COMPONENTS	
1	FS1-1187-000		4	BUSHING	
2	RA2-1567-000		4	ROLLER	
3	RA2-1571-000		1	SPRING, TORSION	
4	RA2-1572-000		2	SHAFT, PAPER FEED	
5	RB1-8052-000		1	LEVER, SENSOR	
6	RB1-8053-000		1	SPRING, LEAF	
7	RB1-8382-000		1	BLOCK, PRESSURE	
8	RB1-8061-000		1	ROLLER, FEED, 1	
9	RB1-8062-000		1	ROLLER, FEED, 2	
10	RB1-8063-000		1	ROLLER, PAPER PICK-UP, 1	
11	RB1-8064-000		1	ROLLER, PAPER PICK-UP, 2	
12	RF5-1698-000		1	SHAFT, DRIVE	
13	RG5-2502-000		1	BOX, CLICK	
13A	RB1-8392-000		1	LEVER, CLICK	
13B	RB1-8082-000		1	SPRING, TORSION	
14	RF5-1699-000		1	PLATE, DRIVE, LEFT	
15	WE8-5171-000		1	FERRITE CORE	
16	RB1-8074-000		1	SHAFT, SEPARATION, LOWER	
17	RF5-1700-000		1	ROLLER, LOWER	
18	RG5-2286-000		1	FEEDER CABLE	J24, J931
19	RH7-1287-000		1	MOTOR, STEPPING	SMT1, J136
20	RS1-0554-000		1	GEAR, 24T	
21	RS1-0555-000		1	GEAR, 20T	
22	RS1-0556-000		1	GEAR, 36T	
23	RS1-0557-000		1	GEAR, 36T	
24	RS1-0558-000		1	GEAR, 24T	
25	RS1-0559-000		1	GEAR, 22T	
26	RS1-0560-000		1	GEAR, 22T	
27	RS1-0561-000		1	GEAR, 20T	
28	RS5-2586-000		1	SPRING, COMPRESSION	
29	RS5-0882-000		2	GEAR, 20T	
30	RS5-1222-000		3	BUSHING	
31	RS5-6185-000		5	BUSHING	
32	XD9-0103-000		1	PIN, DOWEL	
33	RF5-1776-000		1	ROLLER, UPPER	
34	RB1-8088-000		1	LIMITER, TORQUE	
35	RF5-1777-000		1	SHAFT, SEPARATION ROLLER	
36	RS1-0552-000		1	GEAR, 20T	
37	RS1-0553-000		1	GEAR, 42T/28T	
38	WT2-0434-000		1	CLAMP	
39	FL9-0107-000		1	PLATE, DRIVE, RIGHT	
40	RB1-8087-000		1	PLATE, MAGNET SHIELD	
41	RA2-1579-000		1	ARM, REGISTRATION	
501	XB1-2300-607		1	SCREW,MACH.,TRUSS HEAD,M3X6	
502	XB1-2400-607		1	SCREW,MACH.,TRUSS HEAD,M4X6	
503	XB2-7300-607		1	SCREW, W/WASHER, M3X6	
504	XB4-7401-007		7	SCREW,TAPPING,PAN HEAD,M4X10	
505	XD2-2300-402		2	SE RING	
506	XD2-1100-322		5	RING, E	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
F11 - 507	XD2-1100-502		7	RING, E	
508	XB5-6300-807		1	SCREW, TP, M3X8	

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FIGURE F90 PCB ASS'Y LOCATION DIAGRAM

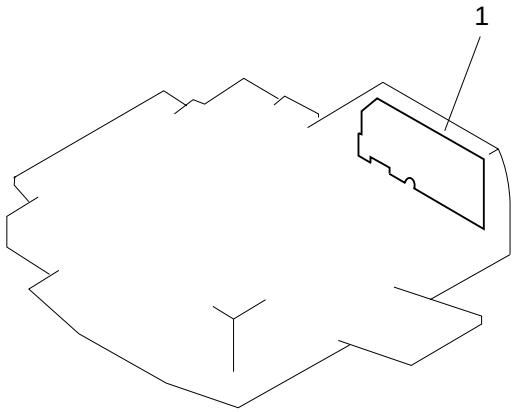

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
F90 -	NPN		RF	PCB ASS'Y LOCATION DIAGRAM	
1	RG5-2285-000		1	ENVELOPE FEEDER PCB ASS'Y	

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PAPER DECK

PAPER DECK
[R77-1032]

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FIGURE RA

ASSEMBLY LOCATION DIAGRAM

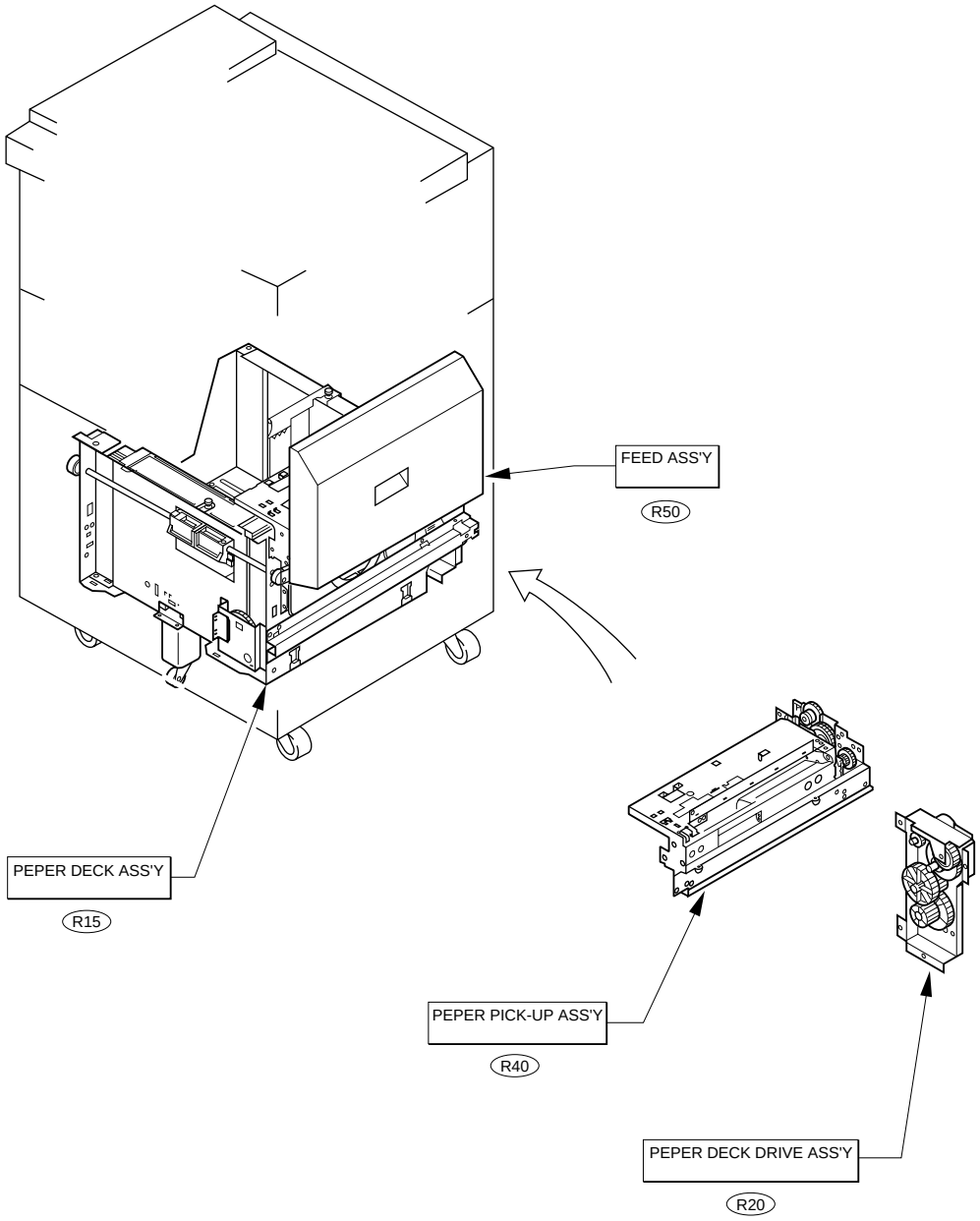

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FIGURE R10 PAPER DECK MAIN BODY (1/2)

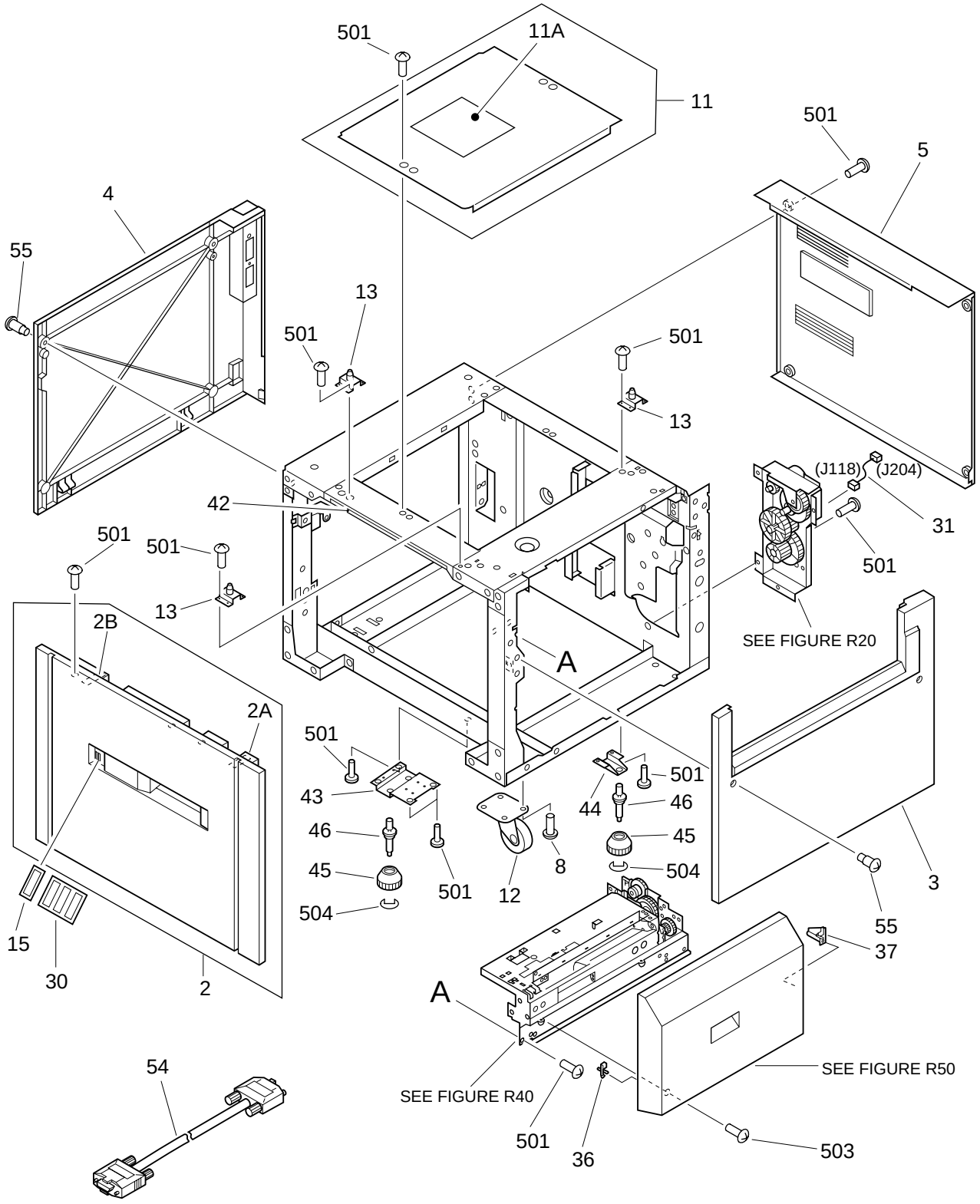

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FIGURE R10 PAPER DECK MAIN BODY (2/2)

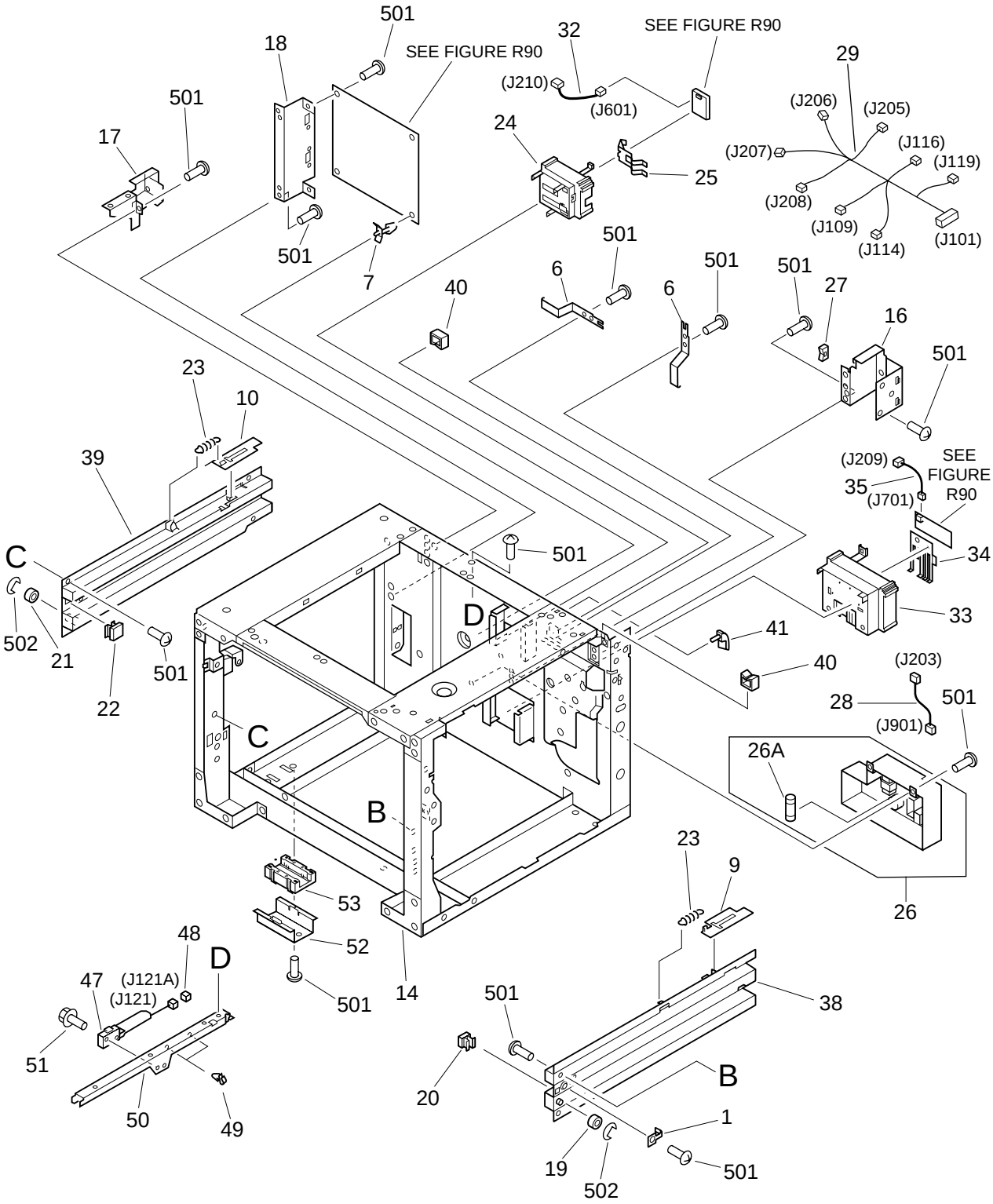

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R10 -	NPN		RF	PAPER DECK MAIN BODY	
1	RB1-7677-000		2	PLATE, STOP	
2	RF5-1801-000		1	COVER, FRONT	
2A	RS5-8723-000		1	LABEL, PAPER SIZE	
2B	RS5-8724-000		1	LABEL, PAPER SIZE	
3	RB1-7849-020		1	COVER, RIGHT	
4	RB1-7850-020		1	COVER, LEFT	
5	RB1-7851-000		1	COVER, REAR	
6	RB1-7835-000		2	SPRING, LEAF	
7	VT2-0001-018		2	SUPPORT	
8	FE9-0290-000		16	SCREW, W/WASHER	
9	RB1-7678-000		1	PLATE, PRESSURE, RIGHT	
10	RB1-7679-000		1	PLATE, PRESSURE, LEFT	
11	RF5-1796-000		1	COVER	
11A	RS5-8572-000		1	LABEL, INSTALLATION	
12	RB1-7681-000		4	CASTER	
13	RF5-1618-000		3	PIN, POSITIONING	
14	RG5-2144-000	N	1	FRAME ASS'Y	
15	RB1-6894-000		1	PLATE, CASSETTE SIZE DISPLAY	
16	RB1-7657-000		1	MOUNT, COVER, 1	
17	RB1-7658-000		1	MOUNT, COVER, 2	
18	RB1-7659-000		1	CROSSMEMBER, PCB	
19	RB1-7661-000		1	ROLLER, RAIL	
20	RB1-7662-000		1	SPACER, RAIL	
21	RB1-7661-000		1	ROLLER, RAIL	
22	RB1-7662-000		1	SPACER, RAIL	
23	RS5-2561-000		2	SPRING, TENSION	
24	RB1-7766-000		1	HOLDER, SENSOR	
25	RB1-7767-000		1	SPRING, LEAF	
26	RG5-2281-000		1	DC POWER SUPPLY ASS'Y	
26A	VD7-0643-151		1	FUSE, 250V, 3.15A	
27	WT2-5098-000		1	CLAMP, CABLE	
28	RG5-2227-000		1	PSU CABLE	J203, J901
29	RG5-2228-000		1	CABLE, MAIN	J101, J109, J114, J116, J119,J205-J208
30	RS5-8611-000		1	LABEL, CASSETTE SIZE DISPLAY	A4/B4, LTR/LGL 11X17/A3
31	RG5-2233-000		1	CABLE, DC MOTOR	J118, J204
32	RG5-2236-000		1	CABLE, PAPER-VOLUME	J210, J601
33	RB1-7776-000		1	HOLDER, SIZE	
34	RB1-7777-000		1	SPRING, LEAF	
35	RG5-2235-000		1	CABLE, PAPER-SIZE	J209, J701
36	RB1-7836-000		1	CLAMP, FRONT	
37	RB1-7837-000		1	CLAMP, REAR	
38	RF5-1616-000		1	RAIL, GUIDE, RH	
39	RF5-1617-000		1	RAIL, GUIDE, LH	
40	WT2-0204-000		2	CLIP, CABLE	
41	WT2-5134-000		6	CLAMP, CABLE	
42	RS5-8705-000		1	LABEL, CAUTION	
43	RB1-7682-000		2	MOUNT, ADJUST, A	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R10 - 44	RB1-7683-000		2	MOUNT, ADJUST, B	
45	RB1-7684-000		4	KNOB, ADJUST	
46	RB1-7685-000		4	SHAFT, ADJUST	
47	RG5-2546-000		1	CABLE, LIMIT, SWITCH	J121
48	VS1-5057-002		1	CONNECTOR, 2P	J121A
49	WT2-0507-000		2	CLAMP, CABLE	
50	RB1-7759-000		1	PLATE, LIMIT SWITCH	
51	XA9-0586-000		1	SCREW, W/SPRING WASHER, M3X14	
52	RB1-7760-000		1	MOUNT, FINISHER	
53	RB1-7761-000		1	GUIDE, RAIL	
54	RH2-5310-000		1	CABLE, INTERFACE	
55	RS5-9099-000		4	SCREW, STEPPED	
501	XB6-7400-607		67	SCREW, TP, M4X6	
502	XD2-1100-642		2	RING, E	
503	XB6-7300-607		2	SCREW, TP, M3X6	
504	XD2-1100-502		4	RING, E	

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FIGURE R15 PAPER DECK ASS'Y(1/2)

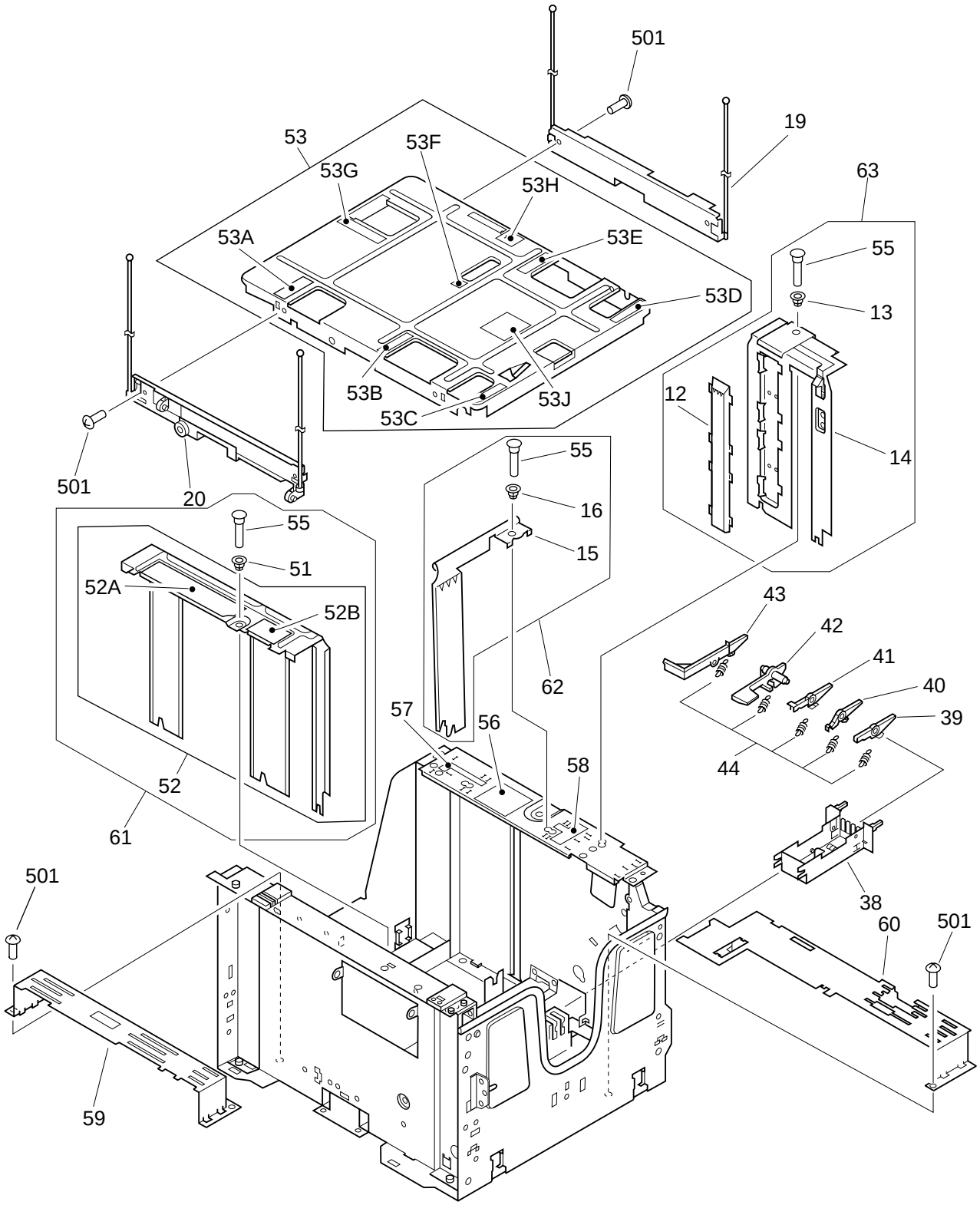

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FIGURE R15 PAPER DECK ASS'Y (2/2)

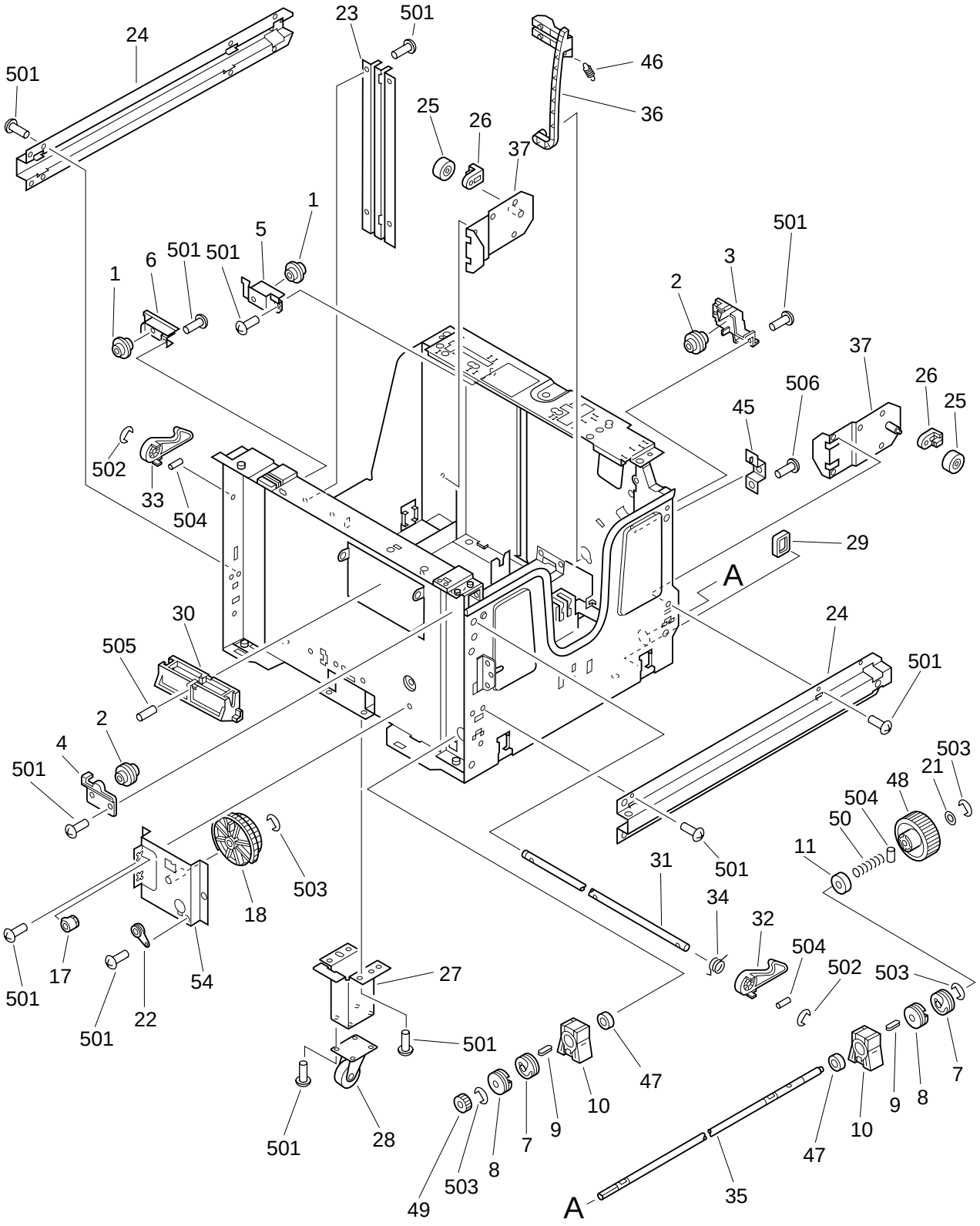

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R15 -	RG5-2155-060		1	PAPER DECK ASS'Y	
1	RB1-7727-000		2	PULLEY	
2	RB1-7728-000		2	PULLEY	
3	RB1-7729-000		1	HOLDER, WIRE, RIGHT, REAR	
4	RB1-7730-000		1	HOLDER, WIRE, RIGHT, FRONT	
5	RB1-7731-000		1	HOLDER, WIRE, LEFT, REAR	
6	RB1-7732-000		1	HOLDER, WIRE, LEFT, FRONT	
7	RB1-7735-020		2	DRUM, TAKE-UP, 1	
8	RB1-7736-020		2	DRUM, TAKE-UP, 2	
9	RB1-7737-000		2	KEY, TAKE-UP	
10	RB1-7738-000		2	COVER, DRUM	
11	RB1-7739-000		1	STOP, SPRING	
12	RB1-7693-000		1	PLATE, PAPER	
13	RB1-7743-000		1	LATCH, LIMIT	
14	RF5-1609-000		1	PLATE, PAPER, LIMIT	
15	RB1-7726-000		1	PLATE, LIMIT	
16	RB1-7743-000		1	LATCH, LIMIT	
17	RB1-7742-000		2	GEAR, 11T	
18	RS5-0867-000		1	GEAR, 96T/98T	
19	RF5-1615-020		1	PLATE, TRAY, 2	
20	RG5-2157-020		1	PLATE, WIRE	
21	RB1-7749-000		1	CUSHION, LIFTER	
22	RS5-1207-020		1	BUSHING	
23	RB1-7704-000		1	PLATE, GUIDE	
24	RB1-7705-000		2	RAIL, TRAY	
25	RB1-7706-000		2	ROLLER, RAIL	
26	RB1-7707-000		2	SPACER, RAIL	
27	RB1-7708-000		1	MOUNT, CASTER	
28	RB1-7709-000		1	CASTER	
29	RB1-7710-000		4	DAMPER, TRAY	
30	RB1-7711-060		1	KNOB, HOUSING	
31	RB1-7712-000		1	SHAFT, KNOB	
32	RB1-7713-000		1	LATCH, HOUSING, RIGHT	
33	RB1-7714-000		1	LATCH, HOUSING, LEFT	
34	RB1-7715-000		1	SPRING, TORSION	
35	RB1-7716-020		1	SHAFT, LIFTER	
36	RB1-7717-020		1	ARM, SENSOR	
37	RF5-1613-000		2	PLATE, SUPPORT, RAIL	
38	RB1-7686-000		1	HOLDER, SIZE CAM	
39	RB1-7687-000		1	CAM, SIZE, 1	
40	RB1-7688-000		1	CAM, SIZE, 2	
41	RB1-7689-000		1	CAM, SIZE, 3	
42	RB1-7690-000		1	CAM, SIZE, 4	
43	RB1-7691-000		1	CAM, SIZE, 5	
44	RS5-2558-000		5	SPRING, TENSION	
45	RB1-7745-000		1	PLATE, SUPPORT	
46	RS5-2560-020		1	SPRING, TENSION	
47	XG9-0250-000		2	BEARING, BALL	
48	RS5-0854-000		1	GEAR, 58T	
49	RS5-0866-000		1	GEAR, 22T	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R15 - 50	RS5-2559-000		1	SPRING, COMPRESSION	
51	RB1-7743-000		1	LATCH, LIMIT	
52	RF5-1623-000		1	PLATE, REFERENCE	
52A	RS5-8573-000		1	LABEL, OPERATION	
52B	RS5-8574-000		1	LABEL, OPERATION	
53	RF5-1626-000	N	1	TRAY, PAPER	
53A	RS5-8578-000		1	LABEL, PAPER SIZE, A	
53B	RS5-8579-000		1	LABEL, PAPER SIZE, B	
53C	RS5-8580-000		1	LABEL, PAPER SIZE, C	
53D	RS5-8581-000		1	LABEL, PAPER SIZE, D	
53E	RS5-8582-000		1	LABEL, PAPER SIZE, E	
53F	RS5-8583-000		1	LABEL, PAPER SIZE, F	
53G	RS5-8584-000		1	LABEL, PAPER SIZE, G	
53H	RS5-8585-000		1	LABEL, PAPER SIZE, H	
53J	RS5-8586-000		1	LABEL, PAPER SIZE, I	
54	RF5-1625-000	N	1	PLATE, DAMPER	
55	RB1-7750-000		3	PLUNGER	
56	RS5-8575-000		1	LABEL, LIMIT	
57	RS5-8703-000		1	LABEL, PAPER SIZE, L	
58	RS5-8704-000		1	LABEL, PAPER SIZE, M	
59	RB1-7747-000		1	PLATE, FRONT	
60	RB1-7748-000		1	PLATE, REAR	
61	RG5-2156-000		1	REFERENCE PLATE ASS'Y	
62	RG5-2150-000		1	LIMIT PAPER PLATE ASS'Y	
63	RG5-2151-000		1	LIMIT PLATE ASS'Y	
501	XB6-7400-607		62	SCREW, TP, M4X6	
502	XD2-1100-502		2	RING, E	
503	XD2-1100-642		6	RING, E	
504	XD3-2200-202		3	PIN, DOWEL	
505	XD3-2300-202		1	PIN, DOWEL	
506	XB6-7400-406		2	SCREW,TP,M4X4	

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FIGURE R20 PAPER DECK DRIVE ASS'Y

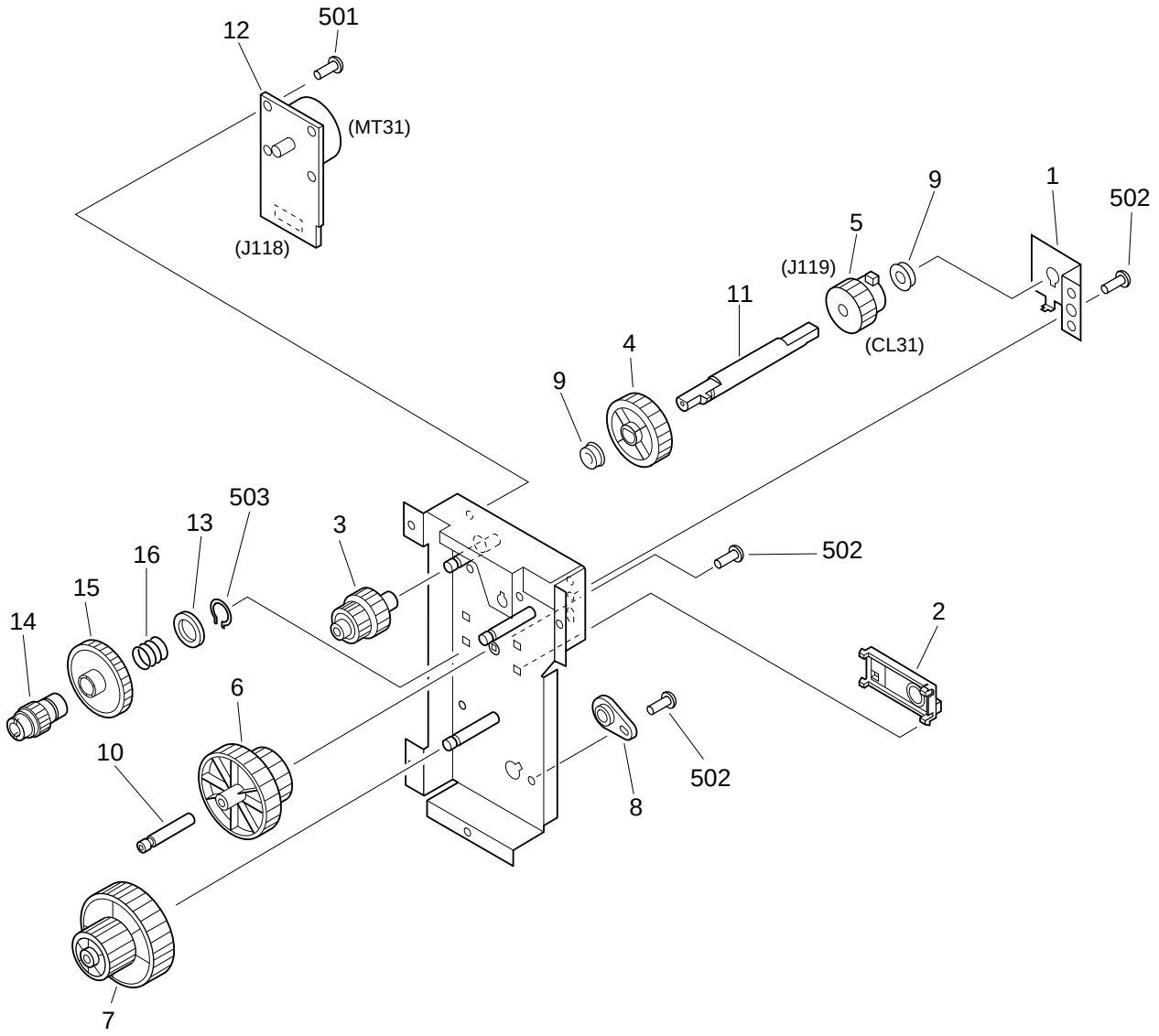

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R20 -	RG5-2164-040		1	PAPER DECK DRIVE ASS'Y	
1	RB1-7757-000		1	PLATE, AUXILLIARY	
2	RB1-7758-000		1	MOUNT, MOTOR	
3	RS5-0861-000		1	GEAR, 25T/55T	
4	RS5-0862-000		1	GEAR, 41T	
5	RH7-5142-020		1	CLUTCH, MAGNETIC	CL31, J119
6	RS5-0864-000		1	GEAR, 24T/63T	
7	RS5-0865-000		1	GEAR, 32T/76T	
8	RS5-1207-020		1	BUSHING	
9	RS5-1208-000		2	BUSHING	
10	RS5-4321-000		1	SHAFT, LIFT GEAR	
11	RS5-5302-000		1	SHAFT, H	
12	RH7-1169-000		1	MOTOR, DC 24V	MT31, J118
13	RB1-7762-000		1	SPACER	
14	RS5-0868-000		1	GEAR, 25T	
15	RS5-0869-000		1	GEAR, 58T	
16	RS5-2567-000		1	SPRING, COMPRESSION	
501	XB6-7300-806		4	SCREW, TP, M3X8	
502	XB6-7400-607		3	SCREW, TP, M4X6	
503	XD2-3100-122		1	RING, C, EXTERNAL	

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FIGURE R40 PAPER PICK-UP ASS'Y

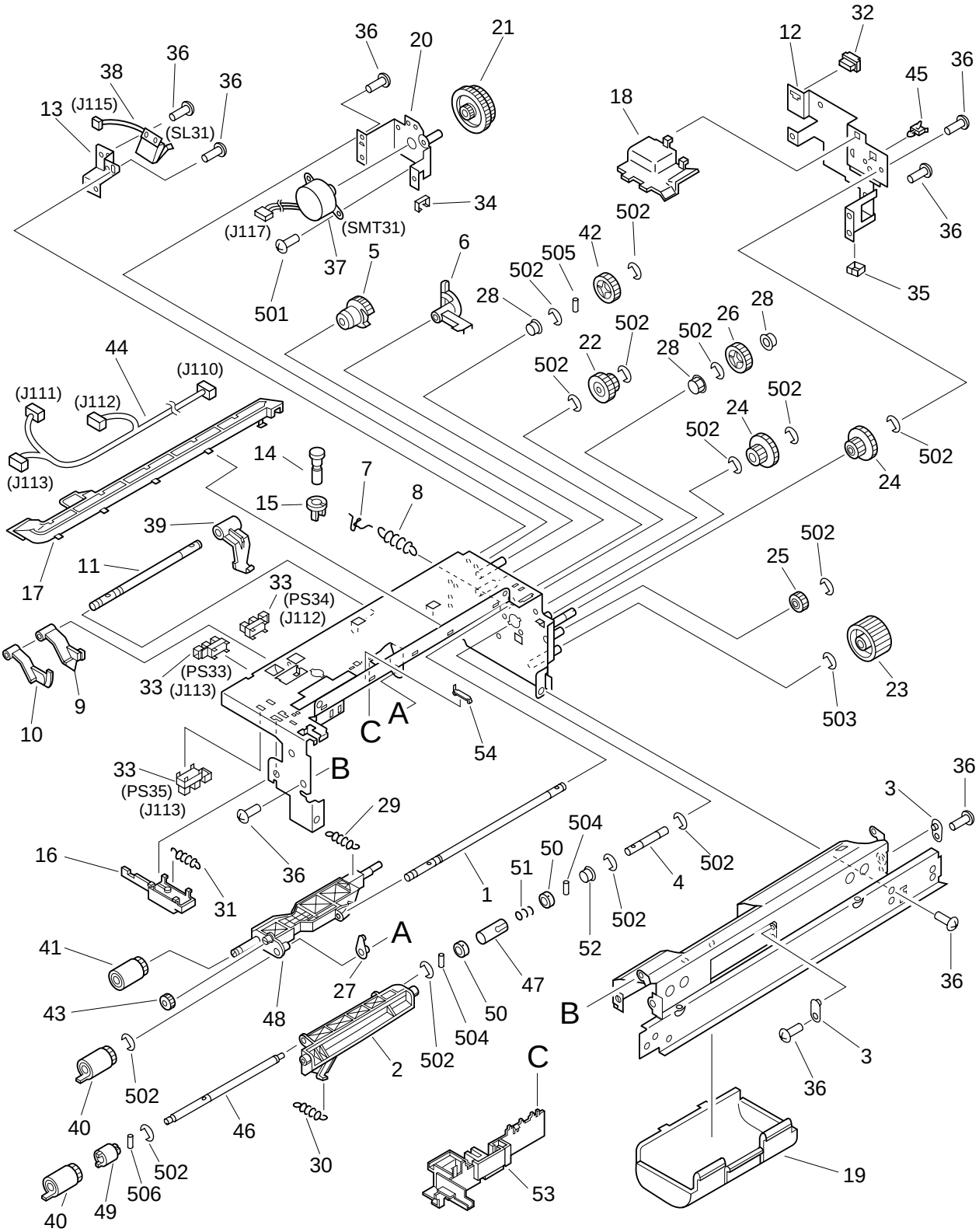

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R40 -	RG5-2170-170		1	PAPER PICK-UP ASS'Y	
1	RB1-7778-000		1	SHAFT, FEED ROLLER	
2	RB1-7779-000		1	ARM, R	
3	RB1-7780-000		2	SHAFT, POSITIONING	
4	RB1-7781-000		1	SHAFT, GEAR	
5	RB1-7782-000		1	CAM, ROLLER	
6	RB1-7783-000		1	ARM, ROLLER	
7	RB1-7784-000		1	ARM, ROLLER, P	
8	RS5-2566-000		1	SPRING, TORSION	
9	RB1-7786-000		1	ARM, PAPER SENSOR	
10	RB1-7787-000		1	ARM, PAPER SENSOR	
11	RB1-7788-000		1	SHAFT, PAPER SENSOR	
12	RB1-7792-000		1	PLATE, GEAR	
13	RB1-7793-000		1	PLATE, SOLENOID	
14	RB1-7794-000		1	SHAFT	
15	RB1-7795-000		1	BUSH	
16	RB1-7796-020		1	LEVER, DOOR SENSOR	
17	RB1-7797-000		1	COVER, CABLE	
18	RB1-7798-000		1	COVER, GEAR	
19	RB1-7799-000		1	COVER, ROLLER	
20	RF5-1622-000		1	MOUNT, MOTOR	
21	RS5-0855-000		1	GEAR, 16T/87T/57T	
22	RS5-0856-000		1	GEAR, 45T/18T	
23	RS5-0857-000		1	GEAR, 40T	
24	RS5-0858-000		2	GEAR, 34T/21T	
25	RS5-0859-000		1	GEAR, 17T	
26	RS5-0860-000		1	GEAR, 38T	
27	RS5-1205-000		1	BUSHING	
28	RS5-1206-000		3	BUSHING	
29	RS5-2562-000		1	SPRING, TENSION	
30	RS5-2563-000		1	SPRING, TENSION	
31	RS5-2564-000		1	SPRING, TENSION	
32	VS1-5057-002		1	CONNECTOR, 2P	
33	WG8-5210-000		3	IC, TLP1240, PHOTO-INTERRUPTER	PS33-PS35, J111-J113
34	WT2-0204-000		1	CLIP, CABLE	
35	WT2-5035-000		1	CLIP, CABLE	
36	XA9-0267-000		19	SCREW, TP, M3X6	
37	RH7-1172-000		1	MOTOR, PICK-UP	SMT31, J117
38	RH7-5143-020		1	SOLENOID	SL31, J115
39	RB1-7800-000		1	ARM, PAPER SENSOR, 2	
40	RF5-1834-000		2	ROLLER, FEED	
41	RF5-1835-000		1	ROLLER, PICK-UP	
42	RS5-0739-000		1	GEAR, 38T	
43	RS5-0740-000		1	GEAR, 18T	
44	RG5-2231-000		1	CABLE, PICK-UP	J110-J113
45	WT2-0495-000		1	CLAMP, CABLE	
46	RB1-7802-000		1	SHAFT	
47	RB1-6571-000		1	JOINT	
48	RB1-6585-000		1	HOLDER, ROLLER	
49	RB1-6588-000		1	LIMITER, TORQUE	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R40 - 50	RB1-6565-000		2	JOINT	
51	RS5-2480-000		1	SPRING, COMPRESSION	
52	RS5-1206-000		1	BUSHING	
53	RB1-7801-000		1	GUIDE, CONNECTOR	
54	RB1-7803-000		1	STOP, ARM	
501	XB2-6300-607		2	SCREW, W/WASHER, M3X6	
502	XD2-1100-502		15	RING, E	
503	XD2-1100-642		1	RING, E	
504	XD3-1200-122		2	PIN, SPRING	
505	XD3-2200-122		1	PIN, DOWEL	
506	XD3-1160-102		1	PIN, SPRING	

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FIGURE R50 FEED ASS'Y

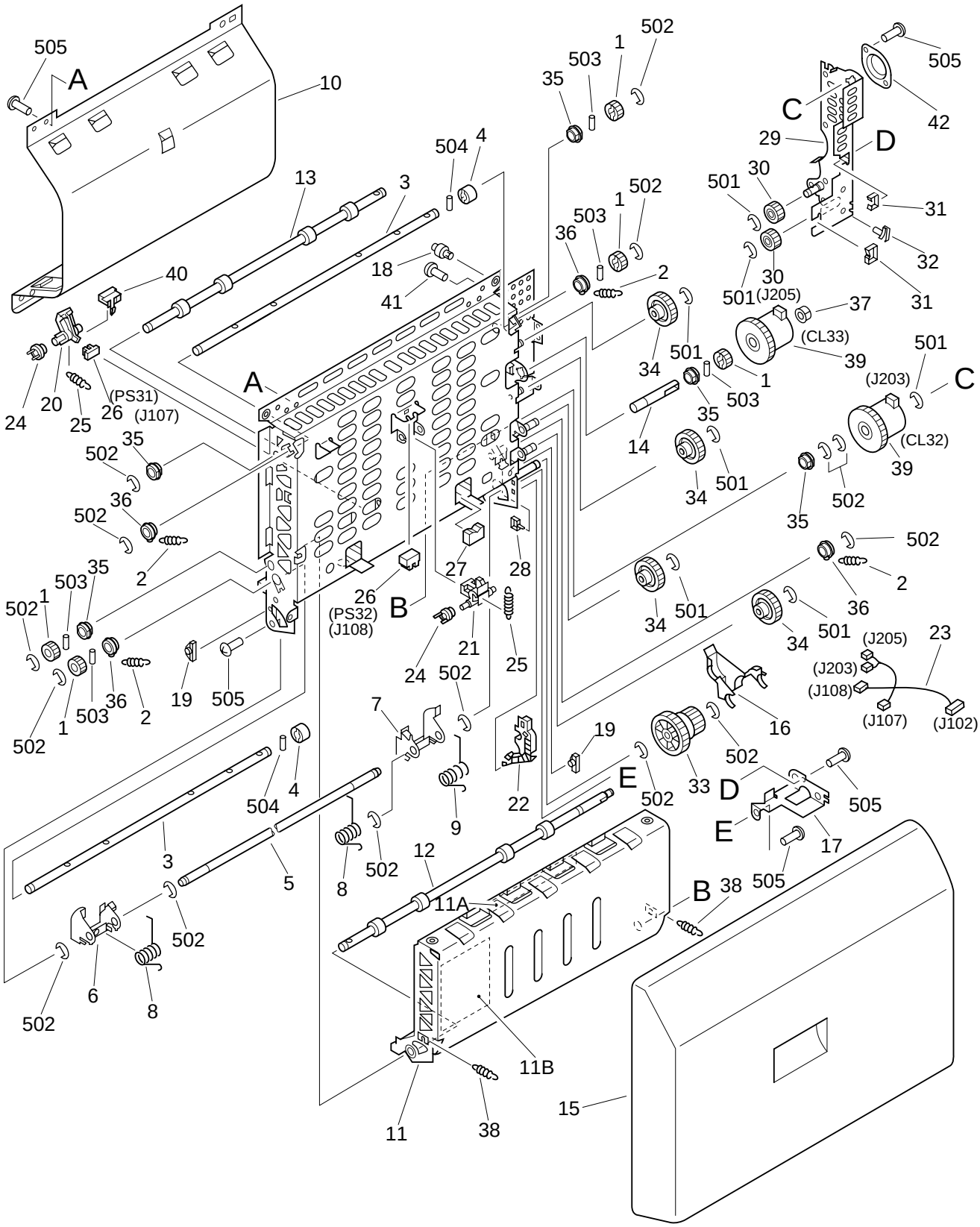

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R50 -	RG5-2172-020		1	FEED ASS'Y	
1	FS5-0338-000		6	GEAR, 16T	
2	RS5-2565-000		4	SPRING, COMPRESSION	
3	RB1-7817-000		2	SHAFT, ROLLER	
4	RB1-7818-000		8	ROLLER, FEED	
5	RB1-7819-000		1	SHAFT, HINGE	
6	RF5-1627-020		1	PLATE, HINGE, FRONT	
7	RF5-1628-020		1	PLATE, HINGE, REAR	
8	RB1-7822-000		2	SPRING, TORSION	
9	RB1-7823-000		1	SPRING, TORSION	
10	RB1-7824-000		1	GUIDE, FEED, OUTER	
11	RF5-1607-000		1	GUIDE, FEED, INNER	
11A	RS5-8570-000		1	LABEL, PROTECTIVE	
11B	RS5-8571-000		1	LABEL, JAM	
12	RB1-7826-000		1	ROLLER, REGIST	
13	RB1-7827-000		1	ROLLER, FEED	
14	RB1-7828-000		1	SHAFT, CLUTCH	
15	RF5-1800-000		1	COVER, FEED	
16	RB1-7830-000		1	COVER, FEED GEAR	
17	RB1-7859-000		1	PLATE, CONNECTING	
18	RB1-3001-000		2	FOOT	
19	RB1-7812-000		2	BLOCK, STOP	
20	RB1-7813-000		1	LEVER, REGIST SENSOR	
21	RB1-7814-000		1	LEVER, JAM SENSOR	
22	RB1-7815-000		1	GUIDE, CABLE	
23	RG5-2229-000		1	CABLE, FEED	J102, J107, J108, J203, J205
24	RS5-1201-000		2	BUSHING	
25	RS5-2556-000		2	SPRING, TENSION	
26	WG8-5210-000		2	IC, TLP1240, PHOTO-INTERRUPTER	PS31, PS32, J107, J108
27	WT2-0204-000		1	CLIP, CABLE	
28	WT2-5134-000		1	CLAMP, CABLE	
29	RF5-1606-000		1	PLATE, CLUTCH	
30	RS5-0850-000		2	GEAR, 16T	
31	WT2-0204-000		2	CLIP, CABLE	
32	WT2-0507-000		1	CLAMP, CABLE	
33	RS5-0851-000		1	GEAR, 24T/44T	
34	RS5-0852-000		4	GEAR, 36T	
35	RS5-1202-000		5	BUSHING	
36	RS5-1203-000		4	BUSHING	
37	RS5-1208-000		1	BUSHING	
38	RS5-2557-000		2	SPRING, TENSION	
39	RH7-5141-020		2	CLUTCH, MAGNETIC	CL32, CL33, J203, J205
40	RB1-7860-000		1	COVER, SENSOR	
41	XA9-0591-000		4	SCREW, M3X8	
42	RB1-7861-000		1	PLATE	
501	XD2-1100-502		6	RING, E	
502	XD2-1200-602		15	RING, E	

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FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R50 - 503	XD3-2200-102		8	PIN, DOWEL	
504	XD3-2200-122		4	PIN, DOWEL	
505	XB6-7300-607		13	SCREW, TP, M3X6	

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FIGURE R90 PCB ASS'Y LOCATION DIAGRAM

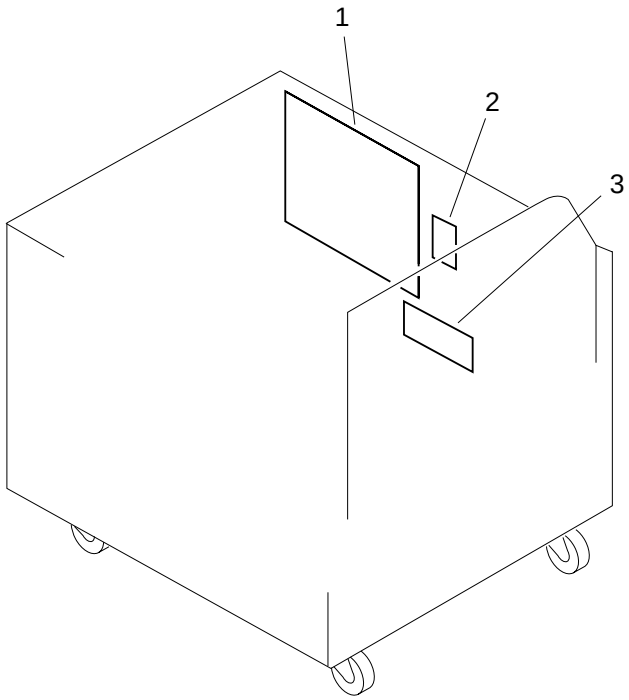

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
R90 -	NPN		RF	PCB ASS'Y LOCATION DIAGRAM	
1	RG5-4198-000		1	PAPER DECK DRIVER PCB ASS'Y	
2	RG5-2225-000		1	PAPER SENSOR PCB ASS'Y	
3	RG5-2226-000		1	PAPER-SIZE SENSING PCB ASS'Y	

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OPTION CONTROLLER

OPTION CONTROLLER
[R77-1027]

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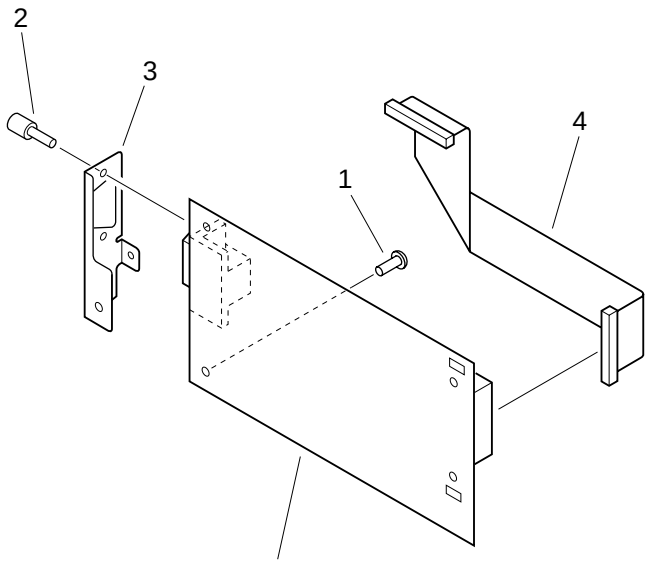
FIGURE V10 OPTION CONTROLLER ASS'Y



SEE FIGURE V90

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
V10 -	NPN		RF	OPTION CONTROLLER ASS'Y	
1	XA9-0836-000		1	SCREW, TP, M3X6	
2	WT2-5391-000		2	SCREW, HEX	
3	RB1-7071-000		1	PLATE, COVER	
4	RG1-3707-000		1	CABLE, FLAT	
5	RG5-3691-020		1	OPTION CONTROLLER PCB ASS'Y	SEE FIGURE V90

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FIGURE V90 PCB ASS'Y LOCATION DIAGRAM

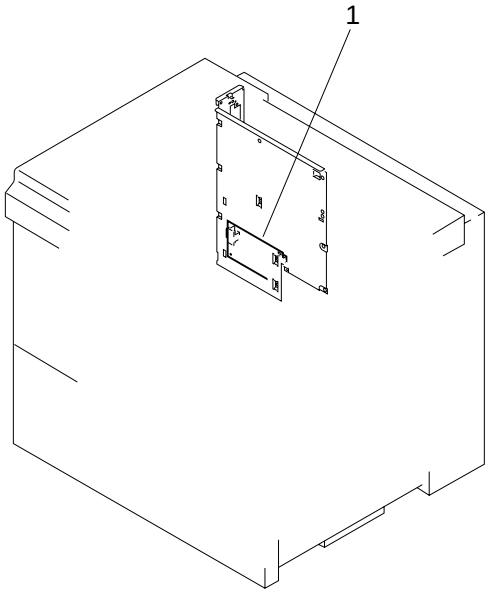

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
V90 -	NPN		RF	PCB ASS'Y LOCATION DIAGRAM	
1	RG5-3691-020		1	OPTION CONTROLLER PCB ASS'Y	

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HARD DISK

HARD DISK
[R03-0170]

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FIGURE W10 HARD DISK ASS'Y

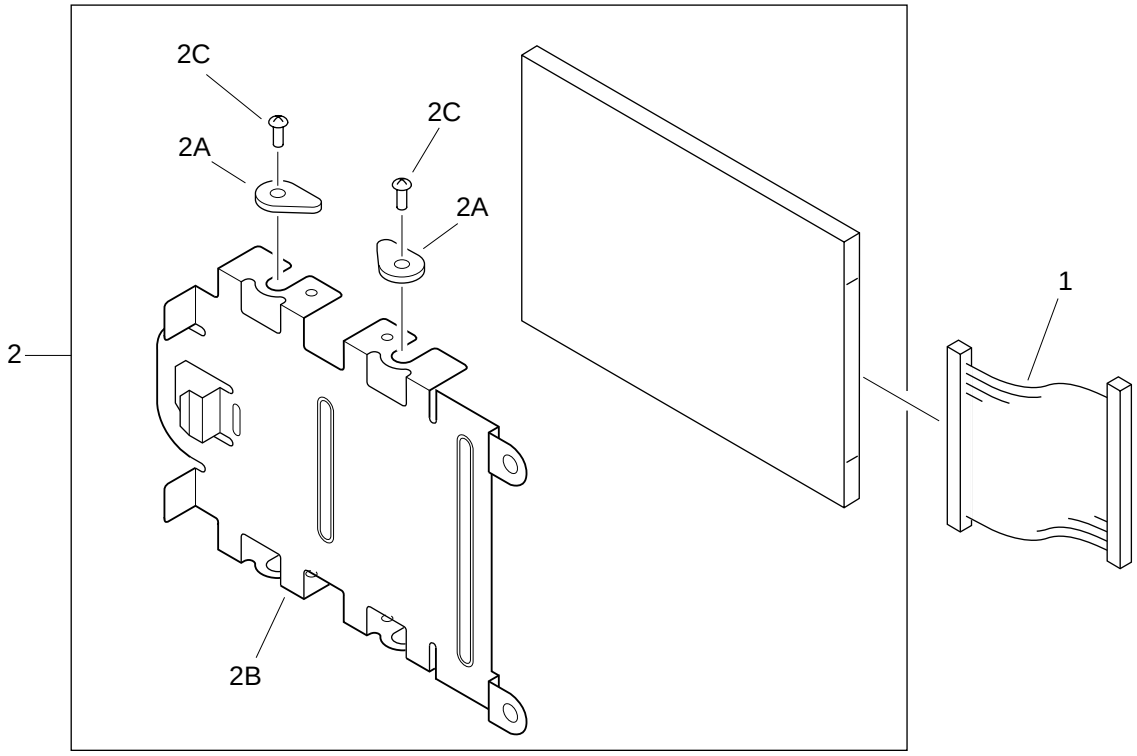

FIGURE & KEY NO.	PART NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER / REMARKS
W10 -	NPN		RF	HARD DISK ASS'Y	
1	RG1-3742-000		1	CABLE, INTER-FACE	
2	RG1-3743-000		1	HARD DISK ASS'Y	
2A	RB1-2952-000		4	SPACER	
2B	RB1-7074-000		1	MOUNT, HARD DISK	
2C	XA9-0836-000		4	SCREW,TP,M3X6	

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B NUMERICAL INDEX

PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.
FA3-8894-000	810 - 1	RB1-6487-000	100 - 7G	RB1-6623-030	810 - 6
FA9-1449-000	810 - 2	RB1-6488-000	100 - 7H	RB1-6624-000	810 - 7
FB1-6823-000	810 - 3	RB1-6493-000	100 - 15	RB1-6625-000	810 - 8
FE9-0290-000	R10 - 8	RB1-6502-000	104 - 1	RB1-6626-000	810 - 9
FL9-0107-000	F11 - 39	RB1-6503-000	103 - 24	RB1-6627-000	810 - 10
FS1-1187-000	F11 - 1	RB1-6507-000	100 - 3	RB1-6628-000	810 - 11
FS5-0338-000	R50 - 1	RB1-6509-000	100 - 18	RB1-6629-000	810 - 12
RA2-1567-000	F11 - 2	RB1-6512-000	102 - 23	RB1-6630-000	810 - 13
RA2-1571-000	F11 - 3	RB1-6517-000	250 - 1	RB1-6631-000	810 - 14
RA2-1572-000	F11 - 4	RB1-6518-030	250 - 2	RB1-6633-000	810 - 15
RA2-1576-000	F10 - 16	RB1-6523-000	102 - 16	RB1-6634-000	810 - 16
RA2-1579-000	F11 - 41	RB1-6526-000	310 - 76	RB1-6635-000	810 - 17
RA2-2372-00V	153 - 1C	RB1-6527-000	310 - 77	RB1-6636-000	810 - 18
RA9-1124-000	351 - 11C	RB1-6528-000	310 - 22	RB1-6637-000	810 - 19
RA9-1125-000	351 - 11D	RB1-6533-000	310 - 33A	RB1-6638-000	810 - 20
RA9-1126-000	351 - 11E	RB1-6534-000	310 - 33B	RB1-6639-030	810 - 21
RA9-1127-000	351 - 16	RB1-6535-000	310 - 44	RB1-6640-020	810 - 59
RB1-0153-000	310 - 2	RB1-6538-000	310 - 37	RB1-6641-000	810 - 60
RB1-1447-000	810 - 32	RB1-6539-000	310 - 36	RB1-6642-000	810 - 30
RB1-2152-000	340 - 35	RB1-6540-000	310 - 40	RB1-6644-000	810 - 64
RB1-2253-000	330 - 1	RB1-6541-000	310 - 41	RB1-6653-000	351 - 11B
RB1-2260-000	102 - 19	RB1-6542-000	310 - 110	RB1-6655-000	351 - 13
RB1-2952-000	W10 - 2A	RB1-6543-000	310 - 23		351 - 14
RB1-3001-000	R50 - 18	RB1-6544-000	310 - 24	RB1-6662-000	350 - 1
RB1-4886-000	152 - 1	RB1-6545-000	310 - 25		351 - 6
	152A - 3	RB1-6546-000	310 - 26	RB1-6663-000	350 - 2
RB1-6400-000	320 - 6A	RB1-6547-000	310 - 27		351 - 7
RB1-6402-000	320 - 1	RB1-6548-000	310 - 28	RB1-6666-000	350 - 3
RB1-6403-000	101 - 13	RB1-6549-000	310 - 29		351 - 10
RB1-6404-000	320 - 2	RB1-6550-000	310 - 30	RB1-6678-020	350 - 18
RB1-6405-000	320 - 3	RB1-6551-000	310 - 31	RB1-6679-000	350 - 19
RB1-6406-000	320 - 4	RB1-6552-000	310 - 45	RB1-6680-000	350 - 22
RB1-6407-000	330 - 2	RB1-6555-000	310 - 46	RB1-6681-000	350 - 21
RB1-6408-000	330 - 12A	RB1-6556-000	310 - 47	RB1-6684-000	350 - 24A
RB1-6409-000	330 - 3	RB1-6557-000	310 - 48	RB1-6686-000	350 - 5
RB1-6411-020	330 - 4	RB1-6558-020	310 - 49	RB1-6687-000	350 - 6
RB1-6412-000	330 - 5	RB1-6559-000	310 - 54	RB1-6688-000	350 - 7
RB1-6413-000	330 - 6	RB1-6560-000	310 - 55	RB1-6689-000	350 - 8
RB1-6414-000	330 - 7	RB1-6561-000	310 - 56	RB1-6690-000	350 - 9
RB1-6415-000	330 - 8	RB1-6562-000	310 - 65	RB1-6691-000	350 - 10
RB1-6416-000	330 - 9	RB1-6563-000	310 - 66	RB1-6692-000	350 - 11
RB1-6417-000	330 - 10	RB1-6564-000	310 - 68	RB1-6693-020	350 - 12
RB1-6419-000	102 - 1	RB1-6565-000	310 - 108	RB1-6694-000	350 - 13
RB1-6421-000	102 - 3		R40 - 50	RB1-6695-000	350 - 14
RB1-6425-000	103 - 1	RB1-6566-000	310 - 111	RB1-6696-000	350 - 15
RB1-6426-000	103 - 2	RB1-6567-000	310 - 78	RB1-6698-000	141 - 1
RB1-6427-000	103 - 3	RB1-6568-000	310 - 79	RB1-6699-000	141 - 2
RB1-6428-000	103 - 4	RB1-6569-030	310 - 16	RB1-6700-000	141 - 3
RB1-6429-000	102 - 25A	RB1-6570-000	310 - 104	RB1-6701-000	350 - 17
	102 - 26A	RB1-6571-000	310 - 105	RB1-6702-000	141 - 4
RB1-6430-000	102 - 2		R40 - 47	RB1-6703-000	350 - 31
RB1-6432-000	102 - 6	RB1-6579-000	310 - 80	RB1-6704-000	350 - 33
RB1-6433-000	102 - 7	RB1-6580-000	310 - 3	RB1-6707-000	340 - 49
RB1-6434-000	102 - 17	RB1-6581-000	310 - 4	RB1-6710-000	340 - 48
RB1-6436-000	320 - 5	RB1-6582-020	310 - 5	RB1-6712-000	340 - 19
RB1-6437-000	330 - 12B	RB1-6583-000	310 - 6	RB1-6713-040	340 - 20
RB1-6438-020	330 - 11	RB1-6584-000	310 - 112	RB1-6714-000	340 - 21
RB1-6441-000	101 - 1A	RB1-6585-000	310 - 7	RB1-6715-000	340 - 22
RB1-6443-020	102 - 8		R40 - 48	RB1-6716-000	340 - 23
RB1-6444-000	102 - 9	RB1-6586-000	310 - 8	RB1-6717-000	340 - 24
RB1-6446-000	102 - 11	RB1-6587-040	310 - 9	RB1-6718-000	340 - 25
RB1-6447-000	102 - 12	RB1-6588-000	310 - 10	RB1-6721-000	340 - 36
RB1-6448-000	102 - 13		R40 - 49	RB1-6722-000	340 - 37
RB1-6449-000	102 - 14	RB1-6589-000	310 - 11	RB1-6723-000	340 - 38
RB1-6450-030	103 - 7	RB1-6590-000	310 - 12	RB1-6726-000	340 - 1
RB1-6455-000	102 - 20	RB1-6591-000	310 - 13	RB1-6727-040	340 - 2
RB1-6456-000	101 - 4	RB1-6593-000	310 - 19A	RB1-6728-000	340 - 3
RB1-6457-000	103 - 8	RB1-6594-000	310 - 57	RB1-6729-000	340 - 4
RB1-6458-000	103 - 9	RB1-6595-000	310 - 58	RB1-6730-000	340 - 5
RB1-6459-000	103 - 10	RB1-6596-000	310 - 59	RB1-6732-000	340 - 7
RB1-6460-000	103 - 11	RB1-6597-000	310 - 69	RB1-6733-000	340 - 8
RB1-6461-000	101 - 5	RB1-6598-000	310 - 70	RB1-6734-000	340 - 9
RB1-6462-000	101 - 6	RB1-6599-000	310 - 81	RB1-6735-000	340 - 10
RB1-6465-000	103 - 12	RB1-6600-000	310 - 14	RB1-6736-000	340 - 11
RB1-6466-000	101 - 7	RB1-6601-000	310 - 15	RB1-6737-000	340 - 12
RB1-6467-000	103 - 13	RB1-6605-030	810 - 24	RB1-6738-000	340 - 13
RB1-6468-000	101 - 8	RB1-6606-000	810 - 25	RB1-6739-000	340 - 14
RB1-6469-020	103 - 29	RB1-6611-020	810 - 33	RB1-6740-000	340 - 15
RB1-6470-000	102 - 21	RB1-6612-000	810 - 34	RB1-6746-000	340 - 16
RB1-6471-020	103 - 30	RB1-6613-000	810 - 35	RB1-6747-000	340 - 26
RB1-6472-000	103 - 14	RB1-6614-000	810 - 36	RB1-6748-000	340 - 17
RB1-6473-000	103 - 15	RB1-6615-020	810 - 37	RB1-6749-000	101 - 3
RB1-6474-000	102 - 22	RB1-6616-020	810 - 38	RB1-6753-000	151 - 1
RB1-6484-000	100 - 7D	RB1-6618-000	810 - 4	RB1-6756-020	151 - 2
RB1-6486-000	100 - 7F	RB1-6622-050	810 - 5	RB1-6757-000	151 - 3

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PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.
RB1-6758-000	151 - 4	RB1-6879-000	300 - 5	RB1-7069-000	152 - 5
RB1-6759-000	151 - 5		301 - 8		152A- 7
RB1-6760-000	104 - 9	RB1-6880-000	301 - 9	RB1-7070-000	152 - 13
RB1-6761-000	104 - 10	RB1-6881-020	300 - 6		152A- 1
RB1-6772-000	104 - 16		301 - 10	RB1-7071-000	V10 - 3
RB1-6775-000	104 - 7	RB1-6882-000	300 - 7	RB1-7072-000	152 - 6
RB1-6776-000	102 - 28		301 - 11		152A- 8
RB1-6777-000	102 - 29	RB1-6883-000	300 - 8	RB1-7073-000	152 - 7
RB1-6778-000	102 - 30		301 - 12		152A- 9
RB1-6780-000	103 - 22	RB1-6884-000	300 - 9	RB1-7074-000	W10 - 2B
RB1-6781-000	103 - 31		301 - 13	RB1-7075-000	152 - 11
RB1-6783-000	102 - 34	RB1-6885-000	300 - 10		152A- 13
RB1-6784-000	300 - 32		301 - 14	RB1-7076-000	152 - 8
	301 - 32	RB1-6887-000	300 - 11		152A- 10
RB1-6785-000	320 - 16		301 - 15	RB1-7079-000	100 - 8
RB1-6786-000	320 - 17	RB1-6888-000	300 - 12	RB1-7657-000	R10 - 16
RB1-6787-000	320 - 18		301 - 16	RB1-7658-000	R10 - 17
RB1-6809-000	D10 - 82	RB1-6889-000	300 - 13	RB1-7659-000	R10 - 18
RB1-6810-000	D10 - 1		301 - 17	RB1-7661-000	R10 - 19
RB1-6811-000	D10 - 2	RB1-6890-000	300 - 14		R10 - 21
RB1-6812-000	D10 - 3		301 - 18	RB1-7662-000	R10 - 20
RB1-6813-000	D10 - 4	RB1-6891-000	300 - 15		R10 - 22
RB1-6814-000	D10 - 5		301 - 19	RB1-7677-000	R10 - 1
RB1-6815-000	D10 - 6	RB1-6892-000	300 - 16	RB1-7678-000	R10 - 9
RB1-6816-020	D10 - 7		301 - 20	RB1-7679-000	R10 - 10
RB1-6817-000	D10 - 8	RB1-6893-000	300 - 17	RB1-7681-000	R10 - 12
RB1-6819-000	D10 - 9		301 - 21	RB1-7682-000	R10 - 43
RB1-6822-000	D10 - 10	RB1-6894-000	R10 - 15	RB1-7683-000	R10 - 44
RB1-6823-000	D10 - 11	RB1-6900-060	300 - 20	RB1-7684-000	R10 - 45
RB1-6824-000	D10 - 12	RB1-6901-000	300 - 21	RB1-7685-000	R10 - 46
RB1-6825-000	D10 - 13	RB1-6902-000	300 - 22	RB1-7686-000	R15 - 38
RB1-6826-000	D10 - 14	RB1-6903-000	300 - 23	RB1-7687-000	R15 - 39
RB1-6827-000	D10 - 15	RB1-6904-000	300 - 24	RB1-7688-000	R15 - 40
RB1-6828-000	D10 - 16		301 - 24	RB1-7689-000	R15 - 41
RB1-6830-000	D10 - 17	RB1-6905-000	300 - 28C	RB1-7690-000	R15 - 42
RB1-6831-000	D10 - 18		301 - 28C	RB1-7691-000	R15 - 43
RB1-6832-000	D10 - 19	RB1-6907-000	301 - 25	RB1-7693-000	R15 - 12
RB1-6834-000	D10 - 20	RB1-6908-000	300 - 25	RB1-7704-000	R15 - 23
RB1-6835-020	D10 - 21	RB1-6909-000	102 - 24	RB1-7705-000	R15 - 24
RB1-6836-000	D10 - 22	RB1-6911-000	301 - 35	RB1-7706-000	R15 - 25
RB1-6837-020	D10 - 23	RB1-6912-000	300 - 35	RB1-7707-000	R15 - 26
RB1-6839-000	D10 - 24	RB1-6913-000	300 - 36	RB1-7708-000	R15 - 27
RB1-6840-000	D10 - 25		301 - 36	RB1-7709-000	R15 - 28
RB1-6841-000	D10 - 26	RB1-6914-000	300 - 28D	RB1-7710-000	R15 - 29
RB1-6842-000	D10 - 27		301 - 28D	RB1-7711-060	R15 - 30
RB1-6843-000	D10 - 28	RB1-6915-000	300 - 37	RB1-7712-000	R15 - 31
RB1-6844-000	D10 - 29		301 - 37	RB1-7713-000	R15 - 32
RB1-6845-000	D10 - 30	RB1-6916-000	300 - 38	RB1-7714-000	R15 - 33
RB1-6846-000	D10 - 31		301 - 38	RB1-7715-000	R15 - 34
RB1-6847-000	D10 - 32	RB1-6927-000	152 - 2	RB1-7716-020	R15 - 35
RB1-6848-000	D10 - 33		152A- 4	RB1-7717-020	R15 - 36
RB1-6849-000	D10 - 34	RB1-6928-000	152 - 3	RB1-7726-000	R15 - 15
RB1-6850-000	D10 - 35		152A- 5	RB1-7727-000	R15 - 1
RB1-6851-000	D10 - 36	RB1-6930-000	104 - 6	RB1-7728-000	R15 - 2
RB1-6852-000	D10 - 37	RB1-6935-000	100 - 6C	RB1-7729-000	R15 - 3
RB1-6853-000	D10 - 38	RB1-6936-000	100 - 5A	RB1-7730-000	R15 - 4
RB1-6854-000	D10 - 39	RB1-6938-000	100 - 6D	RB1-7731-000	R15 - 5
RB1-6855-000	D10 - 40	RB1-6939-000	100 - 17A	RB1-7732-000	R15 - 6
RB1-6858-000	300 - 28A	RB1-6940-000	100 - 22	RB1-7735-020	R15 - 7
	301 - 28A	RB1-6962-000	341 - 1	RB1-7736-020	R15 - 8
RB1-6859-000	300 - 28B	RB1-6963-000	341 - 2	RB1-7737-000	R15 - 9
	301 - 28B	RB1-6966-000	351 - 5	RB1-7738-000	R15 - 10
RB1-6861-000	300 - 29A	RB1-6967-000	100 - 1	RB1-7739-000	R15 - 11
	301 - 29A	RB1-6968-000	350 - 4	RB1-7742-000	R15 - 17
RB1-6863-000	300 - 29B	RB1-6969-000	350 - 16	RB1-7743-000	R15 - 13
	301 - 29B	RB1-6970-000	104 - 14		R15 - 16
RB1-6865-000	300 - 29C	RB1-6971-030	102 - 35		R15 - 51
	301 - 29C	RB1-6972-000	100 - 11	RB1-7745-000	R15 - 45
RB1-6867-000	300 - 29D	RB1-6973-000	100 - 7A	RB1-7747-000	R15 - 59
	301 - 29D	RB1-6974-000	100 - 7B	RB1-7748-000	R15 - 60
RB1-6869-000	300 - 26B	RB1-6975-000	100 - 7C	RB1-7749-000	R15 - 21
	301 - 26B	RB1-6976-000	100 - 7E	RB1-7750-000	R15 - 55
RB1-6871-000	300 - 27B	RB1-6977-000	100 - 12	RB1-7757-000	R20 - 1
	301 - 27B	RB1-6978-000	100 - 13	RB1-7758-000	R20 - 2
RB1-6872-000	300 - 27A	RB1-6980-000	100 - 14	RB1-7759-000	R10 - 50
	301 - 27A	RB1-6981-000	100 - 16	RB1-7760-000	R10 - 52
RB1-6873-070	301 - 2	RB1-6982-000	101 - 9	RB1-7761-000	R10 - 53
RB1-6874-000	301 - 3	RB1-6983-000	100 - 6A	RB1-7762-000	R20 - 13
RB1-6875-020	300 - 2	RB1-6984-000	100 - 6B	RB1-7766-000	R10 - 24
	301 - 4	RB1-6985-000	100 - 5B	RB1-7767-000	R10 - 25
RB1-6876-000	301 - 5	RB1-6992-000	300 - 39	RB1-7776-000	R10 - 33
RB1-6877-000	300 - 3		301 - 39	RB1-7777-000	R10 - 34
	301 - 6	RB1-7000-000	100 - 24	RB1-7778-000	R40 - 1
RB1-6878-000	300 - 4	RB1-7067-000	152 - 4	RB1-7779-000	R40 - 2
	301 - 7		152A- 6	RB1-7780-000	R40 - 3

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PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.
RB1-7781-000	R40 - 4	RF5-1412-000	101 - 1C	RG5-1846-000	900 - 1
RB1-7782-000	R40 - 5	RF5-1414-000	310 - 32	RG5-1847-030	250 -
RB1-7783-000	R40 - 6	RF5-1415-000	310 - 33	RG5-1849-000	104 - 2
RB1-7784-000	R40 - 7	RF5-1417-000	310 - 34	RG5-1850-000	104 - 3
RB1-7786-000	R40 - 9	RF5-1418-000	310 - 35	RG5-1852-230	310 -
RB1-7787-000	R40 - 10	RF5-1421-000	310 - 50	RG5-1859-000	310 - 51
RB1-7788-000	R40 - 11		310 - 71	RG5-1860-000	310 - 103
RB1-7792-000	R40 - 12	RF5-1423-000	310 - 17		900 - 3
RB1-7793-000	R40 - 13	RF5-1424-000	310 - 18	RG5-1861-000	310 - 86
RB1-7794-000	R40 - 14	RF5-1425-000	310 - 19	RG5-1862-000	310 - 85
RB1-7795-000	R40 - 15	RF5-1431-000	810 - 23	RG5-1865-000	810 - 42
RB1-7796-020	R40 - 16	RF5-1433-000	810 - 31	RG5-1867-000	810 - 43
RB1-7797-000	R40 - 17	RF5-1434-000	101 - 12	RG5-1872-000	810 - 61
RB1-7798-000	R40 - 18	RF5-1435-000	810 - 39	RG5-1875-000	141 -
RB1-7799-000	R40 - 19	RF5-1438-000	100 - 9	RG5-1877-000	104 - 4
RB1-7800-000	R40 - 39	RF5-1449-020	350 - 24	RG5-1878-000	104 - 4
RB1-7801-000	R40 - 53	RF5-1452-000	340 - 6	RG5-1880-110	340 -
RB1-7802-000	R40 - 46	RF5-1453-000	340 - 27	RG5-1884-000	340 - 45
RB1-7803-000	R40 - 54	RF5-1454-000	340 - 39		900 - 4
RB1-7812-000	R50 - 19	RF5-1455-000	340 - 18	RG5-1885-000	340 - 41
RB1-7813-000	R50 - 20	RF5-1464-020	104 - 17	RG5-1886-000	340 - 42
RB1-7814-000	R50 - 21	RF5-1466-030	104 - 8	RG5-1887-000	101 - 1
RB1-7815-000	R50 - 22	RF5-1476-000	D10 - 41	RG5-1888-090	151 -
RB1-7817-000	R50 - 3	RF5-1478-000	D10 - 42	RG5-1891-020	151 - 6
RB1-7818-000	R50 - 4	RF5-1480-000	D10 - 43	RG5-1895-050	103 - 6
RB1-7819-000	R50 - 5	RF5-1484-000	300 - 26	RG5-1904-050	D90 - 1
RB1-7822-000	R50 - 8		301 - 26	RG5-1905-000	D10 - 44
RB1-7823-000	R50 - 9	RF5-1485-030	300 - 27	RG5-1906-000	D10 - 45
RB1-7824-000	R50 - 10		301 - 27	RG5-1907-000	D10 - 46
RB1-7826-000	R50 - 12	RF5-1486-000	300 - 18	RG5-1909-000	300 - 28
RB1-7827-000	R50 - 13		301 - 22		301 - 28
RB1-7828-000	R50 - 14	RF5-1487-000	300 - 19	RG5-1910-000	300 - 29
RB1-7830-000	R50 - 16		301 - 23		301 - 29
RB1-7835-000	R10 - 6	RF5-1606-000	R50 - 29	RG5-1919-000	101 - 15
RB1-7836-000	R10 - 36	RF5-1607-000	R50 - 11	RG5-1920-000	102 - 27
RB1-7837-000	R10 - 37	RF5-1609-000	R15 - 14	RG5-1921-000	104 - 12
RB1-7849-020	R10 - 3	RF5-1613-000	R15 - 37	RG5-1925-000	103 - 19
RB1-7850-020	R10 - 4	RF5-1615-020	R15 - 19	RG5-1926-000	103 - 20
RB1-7851-000	R10 - 5	RF5-1616-000	R10 - 38	RG5-1927-000	103 - 21
RB1-7859-000	R50 - 17	RF5-1617-000	R10 - 39	RG5-1928-000	104 - 13
RB1-7860-000	R50 - 40	RF5-1618-000	R10 - 13	RG5-1929-000	D10 - 47
RB1-7861-000	R50 - 42	RF5-1622-000	R40 - 20	RG5-2144-000	R10 - 14
RB1-8052-000	F11 - 5	RF5-1623-000	R15 - 52	RG5-2150-000	R15 - 62
RB1-8053-000	F11 - 6	RF5-1625-000	R15 - 54	RG5-2151-000	R15 - 63
RB1-8061-000	F11 - 8	RF5-1626-000	R15 - 53	RG5-2155-060	R15 -
RB1-8062-000	F11 - 9	RF5-1627-020	R50 - 6	RG5-2156-000	R15 - 61
RB1-8063-000	F11 - 10	RF5-1628-020	R50 - 7	RG5-2157-020	R15 - 20
RB1-8064-000	F11 - 11	RF5-1698-000	F11 - 12	RG5-2164-040	R20 -
RB1-8074-000	F11 - 16	RF5-1699-000	F11 - 14	RG5-2170-170	R40 -
RB1-8075-000	F10 - 14	RF5-1700-000	F11 - 17	RG5-2172-020	R50 -
RB1-8078-000	F10 - 7	RF5-1745-020	341 - 3	RG5-2225-000	R90 - 2
RB1-8079-000	F10 - 8	RF5-1746-000	341 - 4	RG5-2226-000	R90 - 3
RB1-8082-000	F11 - 13B	RF5-1747-000	341 - 5	RG5-2227-000	R10 - 28
RB1-8087-000	F11 - 40	RF5-1748-000	100 - 5	RG5-2228-000	R10 - 29
RB1-8088-000	F11 - 34	RF5-1749-000	100 - 17	RG5-2229-000	R50 - 23
RB1-8378-000	F10 - 1	RF5-1753-000	301 - 1	RG5-2231-000	R40 - 44
RB1-8379-000	F10 - 2	RF5-1754-000	300 - 1	RG5-2233-000	R10 - 31
RB1-8380-000	F10 - 3	RF5-1776-000	F11 - 33	RG5-2235-000	R10 - 35
RB1-8381-000	F10 - 4	RF5-1777-000	F11 - 35	RG5-2236-000	R10 - 32
RB1-8382-000	F11 - 7	RF5-1786-000	F10 - 9	RG5-2281-000	R10 - 26
RB1-8384-000	F10 - 5	RF5-1787-000	F10 - 10	RG5-2285-000	F90 - 1
RB1-8386-000	F10 - 6	RF5-1788-000	F10 - 11	RG5-2286-000	F11 - 18
RB1-8387-000	F10 - 12	RF5-1796-000	R10 - 11	RG5-2287-000	F10 - 17
RB1-8390-000	F10 - 15	RF5-1800-000	R50 - 15	RG5-2407-030	341 -
RB1-8392-000	F11 - 13A	RF5-1801-000	R10 - 2	RG5-2410-020	350 -
RB1-8393-000	F10 - 18	RF5-1834-000	310 - 20	RG5-2412-000	100 - 6
RB1-8394-000	F10 - 19		R40 - 40	RG5-2413-000	100 - 7
RB9-0245-000	351 - 11A	RF5-1835-000	310 - 21	RG5-2502-000	F11 - 13
RB9-0246-000	351 - 12		R40 - 41	RG5-2542-000	103 - 18
RB9-0247-000	351 - 15	RF5-2701-000	100 - 2	RG5-2546-000	R10 - 47
RB9-0248-000	351 - 1	RF9-1249-000	351 - 11	RG5-3677-000	152A-
RB9-0249-000	351 - 2	RG1-3707-000	V10 - 4	RG5-3679-000	152 -
RB9-0250-000	351 - 3	RG1-3736-00V	153 - 1	RG5-3683-000	100 - 19
RB9-0251-000	351 - 4		900 - 6	RG5-3686-000	810 -
RB9-0253-000	351 - 8	RG1-3739-000	153 - 1A	RG5-3687-000	810 -
RB9-0254-000	351 - 9	RG1-3739-00V	152A- 2A	RG5-3691-020	V10 - 5
RB9-0255-000	351 - 21	RG1-3742-000	W10 - 1		V90 - 1
RF5-0716-000	810 - 22	RG1-3743-000	W10 - 2	RG5-4198-000	R90 - 1
RF5-1390-000	320 - 6	RG1-3762-00V	900 - 6	RG9-1151-000	351 -
RF5-1391-000	330 - 12		152A- 2	RH2-5263-000	104 - 19
RF5-1394-000	101 - 1B	RG5-1833-040	320 -	RH2-5310-000	R10 - 54
RF5-1395-000	102 - 25	RG5-1834-030	330 -	RH7-1169-000	R20 - 12
RF5-1396-000	102 - 26	RG5-1843-000	330 - 13	RH7-1172-000	R40 - 37
RF5-1397-000	102 - 18	RG5-1844-050	900 - 2	RH7-1260-000	101 - 10
RF5-1410-000	250 - 3	RG5-1845-000	900 - 5	RH7-1262-000	310 - 87

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PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.	PART NUMBER	FIGURE & KEY NO.
RH7-1263-000	D10 - 48	RS5-0766-000	D10 - 54	RS5-2486-020	810 - 40
RH7-1264-000	D10 - 49	RS5-0767-000	D10 - 55	RS5-2487-000	810 - 54
RH7-1266-000	103 - 16	RS5-0768-000	D10 - 56	RS5-2489-000	351 - 19
	104 - 15	RS5-0769-000	D10 - 57	RS5-2490-000	350 - 24B
RH7-1271-000	104 - 11	RS5-0770-000	D10 - 58		351 - 20
RH7-1287-000	F11 - 19	RS5-0771-000	D10 - 59	RS5-2491-000	350 - 20
RH7-1289-000	350 - 25	RS5-0772-000	D10 - 60		350 - 23
RH7-4070-000	810 - 44	RS5-0773-000	D10 - 61	RS5-2492-000	141 - 6
RH7-4071-000	810 - 45	RS5-0774-000	D10 - 62	RS5-2493-000	141 - 7
RH7-4074-000	810 - 44	RS5-0775-000	D10 - 63	RS5-2494-000	100 - 7J
RH7-4075-000	810 - 45	RS5-0850-000	R50 - 30	RS5-2495-000	340 - 33
RH7-5119-020	320 - 7	RS5-0851-000	R50 - 33	RS5-2496-000	340 - 34
RH7-5120-020	310 - 88	RS5-0852-000	R50 - 34	RS5-2497-000	340 - 43
RH7-5121-020	340 - 28	RS5-0854-000	R15 - 48	RS5-2498-000	340 - 44
RH7-5122-000	D10 - 50	RS5-0855-000	R40 - 21	RS5-2499-000	102 - 31
RH7-5123-000	141 - 5	RS5-0856-000	R40 - 22	RS5-2500-000	102 - 32
RH7-5125-020	340 - 29	RS5-0857-000	R40 - 23	RS5-2556-000	R50 - 25
RH7-5127-000	310 - 82	RS5-0858-000	R40 - 24	RS5-2557-000	R50 - 38
RH7-5129-000	D10 - 51	RS5-0859-000	R40 - 25	RS5-2558-000	R15 - 44
RH7-5130-000	D10 - 52	RS5-0860-000	R40 - 26	RS5-2559-000	R15 - 50
RH7-5141-020	R50 - 39	RS5-0861-000	R20 - 3	RS5-2560-020	R15 - 46
RH7-5142-020	R20 - 5	RS5-0862-000	R20 - 4	RS5-2561-000	R10 - 23
RH7-5143-020	R40 - 38	RS5-0864-000	R20 - 6	RS5-2562-000	R40 - 29
RH7-7064-000	810 - 46	RS5-0865-000	R20 - 7	RS5-2563-000	R40 - 30
RH7-7065-000	810 - 47	RS5-0866-000	R15 - 49	RS5-2564-000	R40 - 31
RH9-0737-000	330 - 17	RS5-0867-000	R15 - 18	RS5-2565-000	R50 - 2
RS1-0552-000	F11 - 36	RS5-0868-000	R20 - 14	RS5-2566-000	R40 - 8
RS1-0553-000	F11 - 37	RS5-0869-000	R20 - 15	RS5-2567-000	R20 - 16
RS1-0554-000	F11 - 20	RS5-0880-000	F10 - 13	RS5-2586-000	F11 - 28
RS1-0555-000	F11 - 21	RS5-0882-000	F11 - 29	RS5-3093-000	350 - 24C
RS1-0556-000	F11 - 22	RS5-1001-000	D10 - 64	RS5-3094-000	350 - 28
RS1-0557-000	F11 - 23	RS5-1002-000	D10 - 65	RS5-3095-000	350 - 29
RS1-0558-000	F11 - 24	RS5-1004-000	310 - 98	RS5-3099-000	D10 - 72
RS1-0559-000	F11 - 25	RS5-1009-000	310 - 64	RS5-3100-000	D10 - 73
RS1-0560-000	F11 - 26		310 - 74	RS5-3101-000	D10 - 74
RS1-0561-000	F11 - 27	RS5-1021-000	340 - 32	RS5-4321-000	R20 - 10
RS1-1087-000	810 - 26		D10 - 66	RS5-5302-000	R20 - 11
RS1-9004-000	810 - 48	RS5-1060-000	350 - 26	RS5-6173-000	D10 - 75
RS2-8073-000	341 - 4A		351 - 17	RS5-6185-000	F11 - 31
	341 - 5A	RS5-1101-000	350 - 27	RS5-8380-000	810 - 41
RS2-8168-000	F10 - 10A		351 - 18	RS5-8428-000	102 - 18A
RS5-0068-000	D10 - 53	RS5-1119-000	340 - 46	RS5-8570-000	R50 - 11A
RS5-0705-000	320 - 8	RS5-1175-000	320 - 11	RS5-8571-000	R50 - 11B
RS5-0706-000	320 - 9	RS5-1176-000	320 - 12	RS5-8572-000	R10 - 11A
RS5-0707-000	320 - 10	RS5-1179-000	310 - 53	RS5-8573-000	R15 - 52A
RS5-0708-000	101 - 14		310 - 67	RS5-8574-000	R15 - 52B
RS5-0717-000	250 - 4		310 - 75	RS5-8575-000	R15 - 56
RS5-0718-000	250 - 5	RS5-1201-000	R50 - 24	RS5-8578-000	R15 - 53A
RS5-0720-000	250 - 7	RS5-1202-000	R50 - 35	RS5-8579-000	R15 - 53B
RS5-0721-000	250 - 8	RS5-1203-000	R50 - 36	RS5-8580-000	R15 - 53C
RS5-0722-000	250 - 9	RS5-1205-000	R40 - 27	RS5-8581-000	R15 - 53D
RS5-0723-000	250 - 10	RS5-1206-000	R40 - 28	RS5-8582-000	R15 - 53E
RS5-0724-000	250 - 11		R40 - 52	RS5-8583-000	R15 - 53F
RS5-0725-000	250 - 12	RS5-1207-020	R15 - 22	RS5-8584-000	R15 - 53G
RS5-0726-000	250 - 13		R20 - 8	RS5-8585-000	R15 - 53H
RS5-0727-000	250 - 14	RS5-1208-000	R20 - 9	RS5-8586-000	R15 - 53J
RS5-0728-000	250 - 15		R50 - 37	RS5-8591-000	810 - 58
RS5-0729-000	250 - 6	RS5-1222-000	F11 - 30	RS5-8593-000	102 - 25B
RS5-0732-020	310 - 89	RS5-2461-000	320 - 13		102 - 26B
RS5-0733-000	310 - 90	RS5-2463-000	330 - 14		300 - 34
RS5-0734-000	310 - 62	RS5-2464-000	330 - 15		301 - 34
RS5-0735-000	310 - 107	RS5-2465-000	104 - 5	RS5-8595-000	D10 - 85
RS5-0736-000	310 - 60	RS5-2466-000	330 - 16	RS5-8597-000	101 - 2
	310 - 72	RS5-2467-000	103 - 17	RS5-8602-000	810 - 62
RS5-0737-000	310 - 61	RS5-2468-000	102 - 10	RS5-8603-000	810 - 62
RS5-0738-000	310 - 83		102 - 15	RS5-8605-000	300 - 26A
RS5-0739-000	310 - 91	RS5-2469-000	103 - 25		301 - 26A
	R40 - 42	RS5-2470-000	103 - 26	RS5-8607-000	300 - 31
RS5-0740-000	310 - 92	RS5-2471-000	D10 - 67		301 - 31
	R40 - 43	RS5-2472-000	D10 - 68	RS5-8611-000	R10 - 30
RS5-0741-000	310 - 93	RS5-2473-000	D10 - 69	RS5-8660-020	341 - 3A
RS5-0742-000	310 - 94	RS5-2474-000	D10 - 70	RS5-8662-000	300 - 1A
RS5-0743-000	310 - 95	RS5-2475-000	310 - 63		301 - 1A
RS5-0744-000	310 - 96	RS5-2476-020	310 - 38	RS5-8664-000	301 - 1B
RS5-0745-000	310 - 97		310 - 39	RS5-8665-000	300 - 1B
RS5-0746-000	310 - 73	RS5-2477-000	310 - 1	RS5-8666-000	301 - 40
RS5-0748-000	810 - 27	RS5-2478-000	310 - 42	RS5-8667-000	300 - 40
RS5-0749-000	810 - 49	RS5-2479-000	310 - 43	RS5-8676-000	100 - 20
RS5-0750-000	810 - 50	RS5-2480-000	310 - 106	RS5-8677-000	100 - 9A
RS5-0751-000	810 - 51		R40 - 51	RS5-8703-000	R15 - 57
RS5-0752-000	810 - 52	RS5-2481-000	310 - 99	RS5-8704-000	R15 - 58
RS5-0753-000	810 - 53	RS5-2482-000	310 - 100	RS5-8705-000	R10 - 42
RS5-0762-000	340 - 30	RS5-2483-000	D10 - 71	RS5-8723-000	R10 - 2A
RS5-0763-000	340 - 31	RS5-2484-020	310 - 101	RS5-8724-000	R10 - 2B
RS5-0764-000	341 - 6	RS5-2485-000	810 - 28	RS5-9099-000	R10 - 55

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PART NUMBER	FIGURE & KEY NO.
VD5-0066-301	104 - 4A
VD7-0643-151	R10 - 26A
VD7-0644-301	104 - 4A
VS1-0842-003	104 - 12A
VS1-5057-002	104 - 13A
	R10 - 48
	R40 - 32
VS1-5057-003	104 - 13B
	350 - 32
VT2-0001-018	R10 - 7
WA7-0063-00V	153 - 1B
	152A- 2B
WE8-5171-000	F11 - 15
WG8-0291-000	310 - 52
	310 - 84
	330 - 18
	D10 - 76
WG8-5210-000	R40 - 33
	R50 - 26
WT2-0204-000	R10 - 40
	R40 - 34
	R50 - 27
	R50 - 31
WT2-0262-000	103 - 28
WT2-0434-000	F11 - 38
WT2-0482-000	102 - 5
WT2-0495-000	R40 - 45
WT2-0507-000	R10 - 49
	R50 - 32
WT2-5026-000	D10 - 81
WT2-5035-000	R40 - 35
WT2-5056-000	D10 - 83
WT2-5098-000	R10 - 27
WT2-5134-000	R10 - 41
	R50 - 28
WT2-5391-000	V10 - 2
XA9-0233-000	810 - 55
XA9-0236-000	300 - 33
	301 - 33
XA9-0267-000	100 - 4
	101 - 11
	102 - 4
	103 - 5
	250 - 16
	D10 - 77
	R40 - 36
XA9-0280-000	810 - 63
XA9-0283-000	300 - 30
	301 - 30
XA9-0386-000	152 - 12
	152A- 15
XA9-0434-000	320 - 14
	340 - 47
XA9-0437-000	100 - 17B
XA9-0527-000	D10 - 78
XA9-0547-000	D10 - 84
XA9-0586-000	R10 - 51
XA9-0591-000	R50 - 41
XA9-0605-000	100 - 21
	101 - 17
XA9-0615-000	152 - 9
	152 - 14
	152A- 11
	152A- 14
XA9-0635-000	340 - 40
XA9-0686-000	102 - 33
	103 - 23
	310 - 113
	350 - 30
XA9-0702-000	320 - 15
XA9-0817-000	103 - 27
XA9-0836-000	152 - 10
	152A- 12
	310 - 102
	V10 - 1
	W10 - 2C
XA9-0851-000	341 - 7
XA9-0872-000	100 - 23
	100 - 25
	101 - 16
	104 - 18
XB1-1301-003	152 - 501
XB1-1301-007	152A- 501
XB1-2300-406	300 - 28E
	300 - 29E

PART NUMBER	FIGURE & KEY NO.
XB1-2300-406	301 - 28E
	301 - 29E
XB1-2300-407	D10 - 501
XB1-2300-607	F11 - 501
XB1-2400-607	F11 - 502
XB2-6300-607	R40 - 501
XB2-7300-607	F11 - 503
	D10 - 502
XB4-7300-805	300 - 501
	301 - 501
XB4-7300-809	103 - 502
	310 - 507
XB4-7400-807	100 - 5C
	100 - 7K
	310 - 506
XB4-7400-809	100 - 6E
	100 - 501
XB4-7401-007	310 - 501
	340 - 501
	D10 - 504
	F10 - 501
	F11 - 504
XB4-7401-009	103 - 503
	310 - 509
	350 - 501
	351 - 501
XB4-7401-207	F10 - 502
XB5-6300-807	F10 - 504
	F11 - 508
XB5-6303-007	103 - 501
XB6-7300-409	141 - 501
XB6-7300-607	R10 - 503
	R50 - 505
XB6-7300-805	810 - 501
XB6-7300-806	R20 - 501
XB6-7303-007	104 - 501
XB6-7400-406	R15 - 506
XB6-7400-607	R10 - 501
	R15 - 501
	R20 - 502
XB6-7400-807	101 - 501
XD1-1105-231	341 - 501
XD1-1105-233	300 - 502
	301 - 502
XD2-1100-322	F11 - 506
XD2-1100-402	310 - 510
	340 - 502
	350 - 502
	351 - 502
	D10 - 505
XD2-1100-502	250 - 501
	310 - 502
	320 - 501
	351 - 11F
	810 - 29
	810 - 502
	D10 - 506
	F11 - 507
	R10 - 504
	R15 - 502
	R40 - 502
	R50 - 501
XD2-1100-642	310 - 503
	320 - 502
	340 - 503
	R10 - 502
	R15 - 503
	R40 - 503
XD2-1200-602	R50 - 502
XD2-2100-602	D10 - 507
	F10 - 503
XD2-2300-402	F11 - 505
XD2-3100-122	R20 - 503
XD3-1160-102	D10 - 508
	R40 - 506
XD3-1200-102	310 - 508
XD3-1200-122	310 - 504
	R40 - 504
XD3-1300-082	141 - 502
	340 - 504
XD3-2200-102	D10 - 503
	R50 - 503
XD3-2200-122	310 - 505
	R40 - 505
	R50 - 504

PART NUMBER	FIGURE & KEY NO.
XD3-2200-202	R15 - 504
XD3-2300-202	R15 - 505
XD9-0103-000	F11 - 32
XD9-0154-000	341 - 8
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